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THE IBIS,

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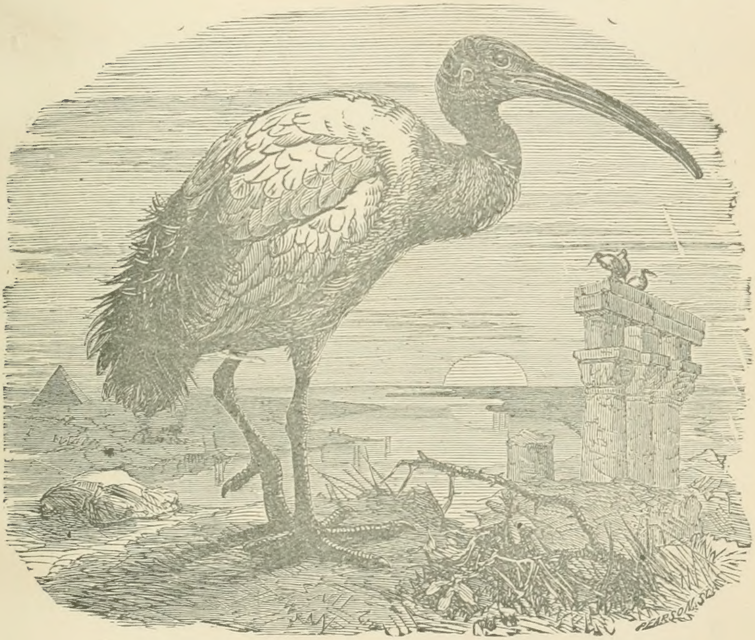

VOL. V. 1917.

TENTH SERIES.

Delectasti me, Domine, in operibus manuum tuarum.

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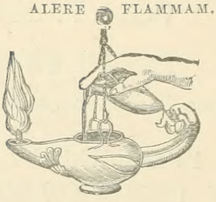
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TENTH SERIES.

VOLUME V.

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,,	2.	,,	April	7th.
,,	3.	,,	July	5th.
,,	4.	,,	October	10th.

LIST OF THE MEMBERS

OF THE

BRITISH ORNITHOLOGISTS' UNION.

1917.

[An asterisk indicates an Original Member. It is particularly requested that Members should give notice to the Secretary of the Union of any error in their addresses or descriptions in this List, in order that it may be corrected.]

Date of Election.

1916. Adams, Ernest Edward; Lloyd's, Royal Exchange, E.C. 3.

1914. Aldworth, Capt. Thomas Preston.

1911. Alexander, Christopher James; 3 Mayfield Road, Tunbridge Wells, Kent.

1911. Alexander, Horace Gundry; 3 Mayfield Road, Tunbridge Wells, Kent.

5 1888. Aplin, Oliver Vernon; Stonehill House, Bloxham, Oxon.

1896. Archibald, Charles F.; 2 Darnley Road, West Park, Leeds, Yorks.

1896. Arrigoni degli Oddi, Count Ettore, Professor of Zoology, University, Padua; and Ca'oddo, Monselice, Padua, Italy.

1901. Arundel, Major Walter B., F.Z.S.; High Ackworth, Pontefract, Yorks.

1915. Ashby, Edwin; Wittunga, Blackwood, Adelaide, S. Australia.

10 1901. Ashby, Herbert; Broadway House, Brookvale Road, Southampton.

1908. Ashworth, John Wallwork, M.R.C.S., L.R.C.P., F.R.G.S., F.G.S.; Thorne Bank, Heaton Moor, near Stockport, Cheshire.

1897. Astley, Hubert Delaval, M.A., F.Z.S.; Brinsop Court, Hereford.

1885. Backhouse, James, F.Z.S.; The Old Manor House, Knaresborough, Yorks.

Date of Election.

1904. Bahr, Philip Heinrich, M.A., M.B., M.R.C.S., L.R.C.P., F.Z.S.; 12 Vicarage Gardens, Kensington, W. 8.

15 1901. Bailward, Col. Arthur Churchill, F.Z.S. (R.F.A.); 64 Victoria Street, S.W. 1.

1892. Baker, E. C. Stuart, F.Z.S.; 6 Harold Road, Upper Norwood, S.E. 19. (*Hon. Secretary and Treasurer.*)

1901. Baker, John C., M.B., B.A.; Ceely House, Aylesbury, Bucks.

1906. Bannerman, David A., B.A., F.R.G.S.; 6 Palace Gardens Terrace, Kensington, W. 8.

1890. Barclay, Francis Hubert, F.Z.S.; The Warren, Cromer, Norfolk.

20 1885. Barclay, Hugh Gurney, F.Z.S.; Colney Hall, Norwich, Norfolk.

1903. Bartels, Max.; Pasir Datar, Halte Tjisaät (Preanger), Java, Dutch East Indies.

1906. Bates, George L., C.M.Z.S.; Bitye, Ebolowa, Cameroon, West Africa.

1912. Baxendale, Francis Richard Salisbury; Commissioner of Famagusta, Cyprus.

1913. Baynes, George Kenneth; 120 Warwick Street, S.W. 1.

25 1912. Beebe, C. William, C.M.Z.S.; Curator of Birds, New York Zoological Park, New York, U.S.A.

1910. Beeston, Harry; Sunnymead, South Street, Havant, Hants.

1897. Benson, John.

1897. Berry, William, B.A., LL.B.; Tayfield, Newport, Fifeshire.

1917. Bertram-Jones, John William; Kelvedon Hall, Brentwood, Essex.

30 1914. Betham, Brigadier-General Robert M.; c/o Messrs. Grindlay & Co., Hornby Road, Bombay, India.

1907. Bethell, The Hon. Richard, F.Z.S. (Scots Guards); 18 Lower Seymour Street, W. 1.

1907. Bickerton, William, F.Z.S.; The Firs, Farraline Road, Watford, Herts.

1880. Bidwell, Edward; 1 Trig Lane, Upper Thames Street, E.C. 4.

1892. Bird, The Rev. Maurice C. H., M.A.; Brunstead Rectory, Stalham, S.O., Norfolk.

35 1891. Blaauw, Frans Ernst, C.M.Z.S.; Gooilust, 's Graveland Hilversum, Noord-Holland.

1913. Blackwood, George Glendinning; Southwood, Peebles.

Date of Election.

1912. Blaine, Capt. Gilbert, F.Z.S.; 5 a The Albany, Piccadilly, W. 1.

1903. Blathwayt, The Rev. Francis Linley, M.A.; Melbury Rectory, Dorchester, Dorset.

1914. Blyth, Robert Oswald, M.A.; Balvonie, Skelmorlie, Ayrshire.

40 1897. Bonar, The Rev. Horatius Ninian, F.Z.S.; 16 Cumin Place, Edinburgh.

1905. Bone, Henry Peters.

1894. Bonhote, John Lewis, M.A., F.L.S., F.Z.S.; Zoological Gardens, Giza, Egypt; and Gade Spring Lodge, Hemel Hempstead, Herts.

1906. Boorman, Staines; Heath Farm, Send, Woking, Surrey.

1898. Booth, George Albert; Whalley Range, Longton, Lancs.

45 1904. Booth, Harry B.; Ryhill, Ben Rhydding, *via* Leeds, Yorks.

1908. Borrer, Clifford Dalison; 20 Pelham Crescent, South Kensington, S.W. 7.

1915. Bradford, Arthur Danby, F.Z.S.; Upton Lodge, Watford, Herts.

1895. Bradford, Sir John Rose, K.C.M.G., M.D., D.Sc., F.R.S., F.Z.S; 8 Manchester Square, W. 1.

1909. Briggs, Thomas Henry, M.A., F.E.S.; Rock House, Lynmouth, R.S.O., N. Devon.

50 1902. Bristowe, Bertram Arthur; Ashford Farm, Stoke D'Abernon, Cobham, Surrey.

1908. Brook, Edward Jonas, F.Z.S.; Hoddam Castle, Ecclefechan, Dumfriesshire.

1899. Brooke, John Arthur, J.P.; Fenay Hall, Huddersfield; and Fearn Lodge, Ardgay, Ross-shire.

1912. Brown, Thomas Edward; c/o Messrs. G. Beyts & Co., 11 Port Tewfik, Suez, Egypt.

1900. Bruce, William Speirs, LL.D., F.R.S.E.; Scottish Oceanographical Laboratory, Surgeon's Hall, Edinburgh.

55 1907. Buckley, Charles Mars; 4 Hans Crescent, S.W. 1.

1906. Bucknill, Sir John Alexander Strachey, K.C., M.A., F.Z.S.; Chief Justice, Straits Settlements; Nassim Hill, Singapore; and Athenæum Club, Pall Mall, S.W. 1.

1908. Bunyard, Percy Frederick, F.Z.S.: 57 Kidderminster Road, Croydon, Surrey.

1907. Butler, Arthur Gardiner, Ph.D., F.L.S., F.Z.S.; 124 Beckenham Road, Beckenham, Kent.

Date of Election.

1899. Butler, Arthur Lennox, F.Z.S.; The Lower Lodge, Brownsover, near Rugby.

60 1900. Buttress, Bernard A. E.; Craft Hill, Dry Drayton, Cambridge.

1905. Buxton, Anthony; Knighton, Buckhurst Hill, Essex.

1912. Buxton, Patrick Alfred; Fairhill, Tonbridge, Kent.

1896. Cameron, Major James S. (2nd Bn. Royal Sussex Regt.); Low Wood, Bethersden, Ashford, Kent.

1888. Cameron, John Duncan; Low Wood, Bethersden, Ashford, Kent.

65 1909. Campbell, David Callender, J.P.; Templemore Park, Londonderry, Ireland.

1909. Carroll, Clement Joseph; Rocklow, Fethard, Co. Tipperary, Ireland.

1904. Carruthers, Alexander Douglas M.; 7 Park Place, St. James', S.W. 1.

1908. Carter, Thomas; Wensleydale, Mulgrave Road, Sutton, Surrey.

1890. Cave, Capt. Charles John Philip, M.A., F.Z.S.; Ditcham Park, Petersfield, Hants.

70 1913. Chaplin, Nugent; The Lodge, Bourne End, Bucks.

1884. Chapman, Abel, J.P., F.Z.S.; Houxty, Wark-on-Tyne, Northumberland.

1882. Chase, Robert William; Herne's Nest, Bewdley, Worcestershire.

1908. Cheesman, Robert E.; c/o F. V. Winch, Esq., North View, Willesley, Cranbrook, Kent.

1910. Chubb, Charles, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W. 7.

75 1912. Clark, George Wingfield, M.A., F.Z.S.; 2 Devana Terrace, Huntingdon Road, Cambridge.

1904. Clarke, Major Goland van Holt, D.S.O., F.Z.S.; Chilworth Court, Romsey, Hants.

1916. Clarke, John Philip Stephenson; Borde Hill, Cuckfield, Sussex.

1889. Clarke, Col. Stephenson Robert, C.B., F.Z.S.; Borde Hill, Cuckfield, Sussex.

1880. Clarke, William Eagle, LL.D., F.L.S., F.R.S.E.; Royal Scottish Museum, Edinburgh.

Date of Election.

80 1904. Cochrane, Captain Henry Lake, R.N.; Naval Board, Melbourne, Australia.

1898. Cocks, Alfred Heneage, M.A., F.Z.S.; Poynetts, Skirmett, near Henley-on-Thames, Oxon.

1895. Coles, Richard Edward; Rosebank, New Milton, S.O., Hants.

1911. Collett, Anthony Keeling; 5 Stone Buildings, Lincoln's Inn, W.C. 2.

1904. Collier, Charles, F.Z.S.; Bridge House, Culmstock, Devon; and Windham Club, St. James' Square, S.W. 1.

85 1916. Coltart, Dr. Henry Neville; Field House, Epsom, Surrey.

1909. Congreve, Capt. William Maitland (R.A.); The Forest, Kerry, Montgomeryshire.

1913. Cook, James Pemberton; c/o Messrs. Wallace & Co., Bombay Burmah Trading Corporation, Ltd., Bombay, India.

1888. Cordeaux, Major William Wilfrid (late 21st Lancers); Hopebourne, Harbledown, Canterbury, Kent.

1914. Courtois, The Rev. F. L., S.J.; Curator of the Sikawei Museum, near Shanghai, China.

90 1913. Cowan, Francis; Wester Lea, Murrayfield, Midlothian.

1894. Crewe, Sir Vauncey Harpur, Bt.; Calke Abbey, Derby.

1917. Cunningham, Josias, R.N.U.R.; Fernhill, Belfast.

1916. Currie, Algernon James; Southlands, Winchester Road, Worthing, Sussex; and c/o Messrs. A. Scott & Co., Rangoon, Burma.

1915. Currie, Robert Alexander (Chinese Customs); The Custom House, Yochow, by Hankow, China.

95 1899. Curtis, Frederick, F.R.C.S.; Lyndens, Redhill, Surrey.

1896. Danford, Major Bertram W. Y., R.E.; c/o Messrs. Cox & Co., 16 Charing Cross, S.W. 1.

1883. Davidson, James, F.Z.S.; 32 Drumsheugh Gardens, Edinburgh.

1905. Davis, K. J. Acton, M.C., F.R.C.S., F.Z.S.; 24 Upper Berkeley Street, W. 1.

1915. Dawson, George Hogarth, F.Z.S.: 29 Lansdowne Crescent, Notting Hill, W. 11.

100 1909. Delmé-Radcliffe, Capt. Alfred (105th Maratha Light Infantry); Church Hatch, Christchurch, Hants.; and c/o Messrs. Cox & Co., Bombay, India.

Date of Election.

1902. Dent, Charles Henry; c/o Messrs. Barclay & Co. Ltd., Darlington, Durham.

1916. Despott, Giuseppe, Curator of the Natural History Museum, The University, Malta.

1893. De Winton, William Edward, F.Z.S.; Southover Hall, Burwash, Sussex.

1896. Dobbie, James Bell, F.R.S.E., F.Z.S.; 12 South Inverleith Terrace, Edinburgh.

105 1889. Dobie, William Henry, M.R.C.S.; 2 Hunter Street, Chester.

1904. Dorrien-Smith, Thomas Algernon, J.P., D.L.; Tresco Abbey, Scilly Isles.

1904. Drake-Brockman, Ralph Evelyn, M.R.C.S., L.R.C.P., F.Z.S.; c/o Messrs. Grindlay & Co., 54 Parliament Street, S.W.

1913. Drummond, James, F.L.S., F.Z.S.; 'Lyttelton Times,' Christchurch, New Zealand.

1890. Drummond-Hay, Col. James A. G. R.- (Coldstream Guards); Seggieden, by Perth.

110 1904. Duckworth, George Herbert; Dalingridge Place, *via* East Grinstead, Sussex.

1878. Durnford, W. Arthur, J.P.; Elsecar, Barnsley, Yorks.

1903. Earle, Edward Vavasour; 47 Lancaster Gate, W. 2.

1914. Edwards, Laurence Albert Curtis, M.A.; Ickwell Green, Biggleswade, Beds.

1895. Elliot, Edmund A. S., M.R.C.S.; Woodville, Kingsbridge, South Devon.

115 1884. Elliott, Algernon, C.I.E.; 16 Belsize Grove, Hampstead, N.W. 3.

1902. Ellison, The Rev. Allan, M.A.; Althorpe Rectory, Doncaster, Yorks.

1866. Elwes, Henry John, F.R.S., F.Z.S.; Colesborne, Cheltenham, Gloucestershire.

1914. Etheridge, Robert, Junr., C.M.Z.S.; Curator of the Australian Museum, Sydney, New South Wales, Australia.

1879. Evans, Arthur Humble, M.A., F.Z.S.; 9 Harvey Road, Cambridge.

120 1888. Evans, William, F.R.S.E.; 38 Morningside Park, Edinburgh.

1916. Ezra, Alfred, F.Z.S.; 110 Mount Street, W. 1.

Date of Election.

1892. Fairbridge, William George; 141 Long Market Street, Capetown, South Africa.

1916. Falkiner, Capt. John McIntire, I.M.S., F.R.C.S.; 121 Indian Field Ambulance, Egypt.

1909. Fanshawe, Capt. Richard D. (late Scots Guards); Broxmore, Cavendish Road, Bournemouth.

125 1894. Farquhar, Rear-Admiral Arthur Murray, C.V.O.; Granville Lodge, Aboyne, Aberdeenshire.

1898. Farquhar, Capt. Stuart St. J., R.N.; Naval & Military Club, Piccadilly, W. 1.

1873. Feilden, Col. Henry Wemyss, C.B., C.M.Z.S.; Burwash, Sussex; and Junior United Service Club, S.W. 1.

1908. Finch-Davies, Claude G. (1st S. African Mounted Riflemen); Windhoek, S.W.A. Protectorate.

1901. Finlinson, Horace W., F.Z.S.; 5 Rosamond Road, Bedford.

130 1885. Fitzherbert-Brockholes, William Joseph; Claughton Hall, Garstang, Lancashire.

1902. Flower, Major Stanley Smyth, F.Z.S.; Kedah House, Zoological Gardens, Giza, Egypt.

1912. Floyd, James Francis Murray, B.A.; The University, Glasgow.

1884. Forbes, Henry Ogg, LL.D., F.Z.S.; Redcliffe, Beaconsfield, Bucks.

1912. Foster, Arthur H., M.R.C.S., L.R.C.P.; Sussex House, 88 Tilehouse Street, Hitchin, Herts.

135 1903. Foster, Nevin Harkness, F.L.S., M.R.I.A.; Hillsborough, Co. Down, Ireland.

1880. Foster, William; 39 Colville Gardens, Bayswater, W. 11.

1887. Fowler, William Warde, M.A.; Lincoln College, Oxford.

1865. Fox, The Rev. Henry Elliott, M.A.; The Croft, Lytton Grove, Putney Hill, S.W. 15.

1881. Freke, Percy Evans; South Point, Limes Road, Folkestone.

140 1895. Frohawk, Frederick William, F.E.S.; Stanley House, Park Road, Wallington, Surrey.

1909. Frost, William Edward, J.P.; Ardvreck, Crieff, Perthshire.

1881. Gadow, Hans, Ph.D., F.R.S., F.Z.S.; Cleramendi, Great Shelford, near Cambridge.

1886. Gainsborough, Charles William Francis, Earl of; Exton Park, Oakham, Rutland.

1907. Gandolfi, Alfonso Otho Gandolfi-Hornyold, Duke, Ph.D.; Blackmore Park, Hanley Swan, Worcestershire.

Date of Election.

145 1900. Garnett, Charles, F.Z.S.; Greathouse, Chippenham, Wilts; and New University Club, St. James's Street, S.W. 1.

1892. Gerrard, John; Silverdale, Worsley, near Manchester, Lancs.

1902. Gibbins, William Bevington, F.Z.S.; Ettington, Stratford-on-Avon, Warwickshire.

1879. Gibson, Ernest, F.L.S., F.Z.S., F.R.G.S.; 25 Cadogan Place, S.W. 1.

1903. Gladstone, Capt. Hugh Steuart, M.A., F.Z.S., F.R.S.E., F.S.A.Scot.; Capenoch, Thornhill, Dumfriesshire; and 40 Lennox Gardens, S.W. 1.

150 1908. Godman, Capt. Edward Shirley (2nd Dorset Regiment); Hampsteel, Cowfold, Sussex.

* 1858. Godman, Frederick DuCane, D.C.L., F.R.S., F.Z.S.; 45 Pont Street, S.W. 1; and South Lodge, Horsham, Sussex. (*Gold Medallist.*)

* 1858. Godman, Percy Sanden, B.A., C.M.Z.S.; Hampsteel, Cowfold, Sussex. (*Gold Medallist.*)

1906. Goodall, Jeremiah Matthews; The Nest, Bembridge, Isle of Wight.

1900. Goodfellow, Walter, F.Z.S.; The Poplars, Kettering, Northants.

155 1906. Gordon, Seton Paul, F.Z.S.; Auchintoul, Aboyne, Aberdeenshire.

1912. Gosse, Capt. Philip, M.R.C.S., L.R.C.P., R.A.M.C.; Curtlemead, Beaulieu, Hants.

1899. Gould, Francis Herbert Carruthers, F.Z.S.; Matham Manor House, East Molesey, Surrey.

1895. Grabham, Oxley, M.A.; The Museum, York.

1909. Grant, Claude Henry Baxter, F.Z.S. (6th Battn. Rifle Brigade); Hedingham Cottage, Hampton Road, Twickenham; and Sports Club, St. James' Square, S.W. 1.

160 1913. Greening, Linnæus, F.L.S., F.Z.S.; Fairlight, Grappenhall, Cheshire.

1909. Grey of Fallodén, The Rt. Hon. Edward, The Viscount, K.G., P.C., F.Z.S.; Fallodon, Christon Bank, R.S.O., Northumberland.

1906. Griffith, Arthur Foster; 59 Montpellier Road, Brighton, Sussex.

1885. Guillemard, Francis Henry Hill, M.A., M.D., F.Z.S.; Old Mill House, Trumpington, Cambridge.

1908. Gurney, Gerard Hudson, F.Z.S., F.E.S.; Keswick Hall, Norwich, Norfolk.

Date of Election.

165 1870. Gurney, John Henry, F.Z.S.; Keswick Hall, Norwich; and Athenæum Club, Pall Mall, S.W. 1.

1896. Gurney, Robert, F.Z.S.; Ingham Old Hall, Stalham, Norfolk.

1891. Haigh, George Henry Caton, F.Z.S.; Grainsby Hall, Great Grimsby, Lincolnshire.

1887. Haines, John Pleydell Wilton; 17 King Street, Gloucester.

1898. Hale, The Rev. James Rashleigh, M.A.; Boxley Vicarage, Maidstone, Kent.

170 1905. Hamerton, Lt.-Col. Albert Edward, D.S.O., R.A.M.C., F.Z.S.; c/o Messrs. Holt & Co., 3 Whitehall Place, S.W. 1.

1913. Hardy, Capt. Ernest Clifford, R.N.; Hydrographic Department, Admiralty, Whitehall, S.W. 1.

1900. Harper, Edmund William, F.Z.S.; P.O. Box 86, Calcutta, India.

1900. Harris, Henry Edward.

1893. Hartert, Ernst J. O., Ph.D., F.Z.S.; The Zoological Museum, Tring, Herts.

175 1868. Harting, James Edmund, F.Z.S.; Portmore Lodge, Weybridge, Surrey.

1893. Hartmann, William; Milburn, Esher, Surrey.

1900. Hasluck, Percy Pedley Harford; The Wilderness, Southgate, N.

1902. Hatfeild, John Randall; Edlington Hall, Horncastle, Lincolnshire.

1898. Hawker, Richard Macdonnell, F.Z.S.; Bath Club, Dover Street, W. 1; and c/o Messrs. Dalgety & Co., 96 Bishopsgate, E.C. 2.

180 1905. Hawkshaw, John Clarke, M.A., M.I.C.E., F.G.S.; Hollycombe, Liphook, Hants.; and 33 Great George Street, Westminster, S.W. 1.

1905. Headley, Frederick Webb, M.A., F.Z.S.; Haileybury College, Hertford.

1902. Hett, Geoffrey Seccombe, M.B., F.Z.S.; 8 Wimpole Street, W. 1.

1913. Hewitt, John, M.A.; Director of the Albany Museum, Grahamstown, South Africa.

1900. Hills, Lt.-Col. John Waller; Brooks' Club, St. James' Street, S.W. 1.

185 1884. Holdsworth, Charles James, J.P.; Fernhill, Alderley Edge, Cheshire.

Date of Election.

1912. Hony, George Bathurst; 4 Beaufort Road, Clifton, Bristol.

1905. Hopkinson, Emilius, M.B., D.S.O., F.Z.S.; 45 Sussex Square, Brighton, Sussex; and Bathurst, Gambia, West Africa.

1916. Hopwood, Cyril (Indian Forests); c/o Messrs. Thos. Cook & Son, Rangoon, Burma.

1888. Horsfield, Herbert Knight; Crescent Hill, Filey, Yorks.

190 1895. Howard, Henry Eliot, F.Z.S.; Clarelands, near Stourport, Worcestershire. (*Committee.*)

1881. Howard, Robert James; Shearbank, Blackburn, Lancashire.

1911. Hudson, Edward; 15 Queen Anne's Gate, S.W. 1.

1911. Hudson, Reginald; 16 Warwick Road, Stratford-on-Avon.

1901. Ingram, Capt. Collingwood, F.Z.S.; Forest House, Westgate-on-Sea, Kent.

195 1902. Innes Bey, Dr. Walter Francis; Curator of the Zoological Museum, School of Medicine, Cairo, Egypt.

1913. Iredale, Tom; 39 Northcote Avenue, Ealing, W. 5.

1888. Jackson, Sir Frederick John, C.B., K.C.M.G., F.L.S., F.Z.S.; Entebbe, Uganda, British East Africa; and The Red House, Aldeburgh, Suffolk.

1892. James, Henry Ashworth, F.Z.S.; Hurstmonceux Place, Hailsham, Sussex.

1896. Jesse, William, B.A., F.Z.S.; Meerut College, Meerut, India.

200 1889. Johnson, Frederick Ponsonby, B.A., J.P., D.L.; Castlesteads, Brampton, Cumberland.

1915. Johnson, Sir Henry James, F.Z.S.; 55 Sloane Gardens, S.W. 1.

1891. Johnston, Sir Harry Hamilton, G.C.M.G., K.C.B., F.Z.S.; St. John's Priory, Poling, near Arundel, Sussex.

1905. Johnstone, Edwin James, F.Z.S.; Burrswood, Groombridge, Sussex; and Junior Carlton Club, Pall Mall, S.W. 1.

1900. Jones, Major Henry, F.Z.S. (late 62nd Regt.); 41 Vineyard Hill Road, Wimbledon Park, S.W. 19.

205 1909. Jones, Fleet-Surgeon Kenneth Hurlstone, M.B., Ch.B., F.Z.S., R.N.; The Manor House, St. Stephen's, Canterbury, Kent.

1899. Jourdain, The Rev. Francis Charles Robert, M.A.; Appleton Rectory, Abingdon, Berks.

1902. Joy, Norman Humbert, M.R.C.S., L.R.C.P.; Theale, Berks.

Date of Election.

1880. KELHAM, Brigadier-General HENRY ROBERT, C.B. (late Highland Light Infantry); Army and Navy Club, Pall Mall, S.W. 1.

1894. KELSALL, Lt.-Col. HARRY JOSEPH, R.A.; c/o Messrs. Cox & Co., 16 Charing Cross, S.W. 1.

210 1897. KELSALL, The Rev. JOHN EDWARD, M.A.; Milton Rectory, New Milton, Hants.

1904. KELSO, JOHN EDWARD HARRY, M.D.; Braeside, Edgewood, Lower Arrow Lake, British Columbia.

1914. KENNEDY, JOHN NOBLE, M.C., R.G.A.; The Manse, Port Patrick, Wigtownshire, Scotland; and c/o Messrs. Cox & Co., 16 Charing Cross, S.W. 1.

1891. KERR, JOHN GRAHAM, F.R.S., F.Z.S., Regius Professor of Zoology; 9 The University, Glasgow.

1895. KINGSFORD, WILLIAM EDWARD; Cairo, Egypt.

215 1902. KINNEAR, NORMAN BOYD, C.M.Z.S.; Bombay Natural History Society, 6 Apollo Street, Bombay, India.

1910. KLOSS, CECIL BODEN, F.Z.S., F.R.A.I.; Assistant Director of Museums, Kuala Lumpur, Federated Malay States.

1900. KOENIG, Dr. ALEXANDER FERDINAND; Coblenzer-Strasse 164, Bonn, Germany.

1906. KOLLIBAY, PAUL; Ring 12 I, Neisse, Germany.

1892. LAIDLAW, THOMAS GEDDES; Bank of Scotland House, Duns, Berwickshire.

220 1913. LAMBERT, GODFREY CHARLES; Woodcote, Esher, Surrey.

1917. LAMPARD-VACHELL, BENJAMIN GARNET; 5 Palmer Street, Westminster, S.W. 1.

1884. LANGTON, HERBERT; St. Moritz, 61 Dyke Road, Brighton, Sussex.

1881. LASCELLES, The Hon. GERALD WILLIAM, F.Z.S.; Tillington House, Petworth, Sussex.

1892. LA TOUCHE, JOHN DAVID DIGUES, C.M.Z.S.; c/o Custom House, Chinwangtao, North China (*viâ* Siberia).

225 1910. LEMON, Mrs. MARGARETTA LOUISA, F.Z.S.; Hillcrest, Redhill, Surrey.

1898. LE SOUËF, DUDLEY, C.M.Z.S.; Director of the Zoological Gardens, Melbourne, Victoria, Australia.

1897. LILFORD, JOHN, Lord, F.Z.S.; Lilford Hall, Oundle, Northants.

1909. LINGS, GEORGE HERBERT; Richmond Hill, Cheadle, Cheshire.

Date of
Election.

1897. Lodge, George Edward, F.Z.S.; 5 The Studios, Thurloe Square, S.W. 7.

230 1908. Long, Sydney Herbert, M.D., F.Z.S.; 31 Surrey Street, Norwich, Norfolk.

1904. Lowe, Percy R., B.A., M.B., B.C.; The Nuns, Stamford, Lincs.

1914. Lowe, Willoughby Prescott: Gorsemoor, Throwleigh, Okehampton, Devon.

1904. Lynes, Captain Hubert, R.N.; H.M.S. 'Penelope,' c/o G.P.O., London.

1905. McGregor, Peter James Colquhoun; c/o Dr. B. McGregor, 10 Leopold Road, Wimbledon, S.W. 19.

235 1917. Mackenzie, John Mitchell Douglas, C.M.Z.S. (Assist. Conservator of Forests); c/o Messrs. Thos. Cook & Son, Rangoon, Burma, India; 6 The Circus, Bath.

1897. McLean, John Chambers; General Post Office, Wellington, New Zealand.

1899. Macmillan, George Augustin, F.Z.S.; 27 Queen's Gate Gardens, S.W. 7.

1906. Macmillan, William Edward Frank; 42 Onslow Square, S.W. 7.

1894. Macpherson, Arthur Holte, F.Z.S.; 21 Campden Hill Square, Kensington, W. 8.

240 1906. Magrath, Lt.-Col. Henry Augustus Frederick (51st Sikhs, F.F.); c/o Messrs. H. S. King & Co., 9 Pall Mall, S.W. 1.

1917. Malcomson, Herbert Thomas; Glenorchy, Knock, Belfast.

1917. Mann, Capt. Edward Hamilton, M.C., R.H.A.; Junior United Service Club, Charles Street, S.W. 1.

1907. Mann, Thomas Hugh, F.Z.S.; Trulls Hatch, Rotherfield, Sussex.

1904. Mapleton, Harvey William, B.A.; Weare, Axbridge, Somerset.

245 1894. Marshall, Archibald McLean, F.Z.S.; Great Chitcombe, Brede, Sussex.

1894. Marshall, James McLean, F.Z.S.; Bleaton Hallet, Blairgowrie, Perthshire.

1897. Mason, Col. Edward Snow; 10 Lindum Terrace, Lincoln.

1898. Massey, Herbert; Ivy Lea, Burnage, Didsbury, Manchester.

1907. Mathews, Gregory Macalister, F.L.S., F.R.S.E., F.Z.S.; Foulis Court, Fair Oak, Hants.

Date of Election.

250 1915. MATON, EUSTACE BERTIE; Enford, Pewsey, Wilts.

1915. MAY, WILLIAM NORMAN, M.D.; The White House, Sonning, Berks.

1883. MEADE-WALDO, EDMUND GUSTAVUS BLOOMFIELD, F.Z.S.; Hever Warren, Hever, Kent.

1912. MEIKLEJOHN, Major RONALD FORBES, D.S.O. (1st Bn. Royal Warwickshire Regt.); 147 Victoria Street, Westminster, S.W. 1.

1899. MEINERTZHAGEN, Major RICHARD, F.Z.S. (Royal Fusiliers); 63 Bedford Gardens, Campden Hill, W. 8.

255 1886. MILLAIS, JOHN GUILLE, F.Z.S.; Compton's Brow, Horsham, Sussex.

1916. MILLARD, WALTER SAMUEL, F.Z.S.; Bombay Natural History Society, 6 Apollo Street, Bombay, India.

1903. MILLS, The Rev. HENRY HOLROYD, M.A., F.Z.S.; The Rectory, St. Stephen-in-Brannel, Grampound Road, Cornwall.

1879. MITCHELL, FREDERICK SHAW; Hornshaws, Millstream, B.C., Canada.

1901. MITCHELL, P. CHALMERS, M.A., D.Sc., LL.D., F.R.S., F.L.S., F.Z.S.; Secretary to the Zoological Society of London, Regent's Park, N.W. 8.

260 1914. MOULTON, JOHN CONEY, F.Z.S.; Fort Canning, Singapore, Straits Settlements.

1912. MOURITZ, L. BERESFORD; 2nd L.H. Regt., 1st Australian Light Horse Brigade.

1886. MUIRHEAD, GEORGE, F.R.S.E.; Speybank, Fochabers, Morayshire.

1893. MULLENS, Major WILLIAM HERBERT, M.A., LL.M., F.Z.S.; Westfield Place, Battle, Sussex.

1892. MUNN, PHILIP WINCHESTER, F.Z.S.; Stourwood Cottage, Stourwood Avenue, Southbourne, Hants.

265 1897. MUNT, HENRY, F.Z.S.; 10 Ashburn Place, South Kensington, S.W. 7.

1911. MURRAY, Capt. EDWARD MACKENZIE; Woodside, Coupar-Angus, Perthshire.

1910. MURRAY, Capt. HERBERT WILLAUME, F.Z.S.; The Old House, Epsom, Surrey.

1900. MUSTERS, JOHN PATRICIUS CHAWORTH, D.L., J.P.; Annesley Park, Nottingham.

Date of Election.

1907. Neave, Sheffield Airey, M.A., B.Sc., F.Z.S.; 24 De Vere Gardens, Kensington, W. 8.

270 1895. Nesham, Robert, F.Z.S., F.E.S.; Utrecht House, Poynder's Road, Clapham Park, S.W. 4.

1904. Newman, Thomas Henry, F.Z.S.; Newlands, Harrowdene Road, Wembley, Middlesex.

1917. Nicholl, Archibald M. C.; Royal Naval College, Osborne, Isle of Wight.

1902. Nichols, John Bruce, F.Z.S.; Parliament Mansions, Victoria Street, S.W. 1.

1900. Nichols, Walter Buchanan; Stour Lodge, Bradfield, Manningtree, Essex.

275 1876. Nicholson, Francis, F.Z.S.; Ravenscroft, Windermere, Westmoreland.

1902. Nicoll, Michael John, F.Z.S.; Valhalla House, Zoological Gardens, Giza, Egypt.

1892. Ogilvie, Fergus Menteith, M.A., F.Z.S.; The Shrubbery, 72 Woodstock Road, Oxford.

1890. Ogilvie-Grant, William Robert, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W. 7.

1889. Ogle, Bertram Savile; Hill House, Steeple Aston, Oxon.

280 1907. Oldham, Charles, F.Z.S.; The Bollin, Shrublands Road, Berkhamsted, Herts.

1906. Osmaston, Bertram Beresford (Imperial Forest Service); Dehra Dun, India.

1913. Owen, John Hugh; Old School House, Felsted, Essex.

1883. Parker, Henry, C.E.; 26 St. George's Road, St. Annes-on-the-Sea, Lancs.

1880. Parkin, Thomas, M.A., F.L.S., F.Z.S.; Fairseat, High Wickham, Hastings, Sussex.

285 1908. Paton, Edward Richmond, F.Z.S.; Hareshawmuir, By Kilmarnock, Ayrshire, Scotland.

1891. Patterson, Robert, F.L.S., M.R.I.A.; Glenbank, Holywood, Co. Down, Ireland.

1911. Patterson, William Harry; 25 Queen's Gate Gardens, S.W. 7.

1904. Pearse, Theed; Courtenay, British Columbia.

1894. Pearson, Charles Edward, F.L.S.; Hillcrest, Lowdham, Notts.

Date of Election.

290 1902. Pease, Sir Alfred Edward, Bt., F.Z.S.; Pinchinthorpe House, Guisborough, Yorkshire; and Brooks's Club, St. James's Street, S.W. 1.

1891. Penrose, Francis George, M.D., F.Z.S.; Rathkeale, 51 Surrey Road, Bournemouth.

1900. Percival, Arthur Blayney, F.Z.S.; Game Ranger, Nairobi, British East Africa; Sports Club, St. James' Square, S.W. 1.

1912. Pershouse, Major Stanley (1st Border Regt.); Cuil Park, Bridge of Dee, Castle Douglas, Scotland.

1886. Phillips, Ethelbert Lort, F.Z.S.; 79 Cadogan Square, S.W.

295 1893. Pigott, Sir Thomas Digby, C.B.; The Lodge, Lower Sheringham, Norfolk.

1914. Pitman, Capt. Charles Robert Senhouse (27th Punjabis); Drewton, Chelston, Torquay.

1908. Player, W. J. Percy; Wernfadog, Clydach, R.S.O., Glamorganshire.

1907. Pocock, Reginald Innes, F.R.S., F.L.S., F.Z.S.; Superintendent of the Zoological Gardens, Regent's Park, N.W. 8.

1917. Poliakov, Gregory T. (Editor 'Messager Ornithologique'); Moskva-Nijninovgorod Railway, Station Obiralovka, Savvino, Russia.

300 1905. Pollard, Lt.-Col. Arthur Erskine St. Vincent (The Border Regiment); c/o Mrs. A. Pollard, Heatherlands, Lilliput, Dorset.

1896. Popham, Hugh Leyborne, M.A.; Houndstreet House, Pensford, Somerset.

1916. Praed, Cyril W. Mackworth (Scots Guards); Orielton, Pembroke.

1898. Price, Athelstan Elder, F.Z.S.; 4 Mincing Lane, E.C. 3.

1901. Proud, John T.; Dellwood, Bishop Auckland, Durham.

305 1893. Pycraft, William Plane, F.Z.S.; British Museum (Natural History), Cromwell Road, S.W. 7.

1903. Ralfe, Pilcher George; The Parade, Castletown, Isle of Man.

1903. Ratcliff, Frederick Rowlinson; 29 Connaught Square, W. 2.

1917. Rattray, Col. Rullion Hare (retired); 68 Dry Hill Park Road, Tonbridge.

Date of Election.

1917. Raw, William, R.N.V.R.; H.M. Wireless Station, Abu Zabal, Caliubia, Lower Egypt.

310 1879. Rawson, Herbert Evelyn; Comyn Hill, Ilfracombe, N. Devon.

1894. Read, Richard Henry, M.R.C.S., L.R.C.P.; Church Street, Hanley, Staffordshire.

1888. Read, Robert H.; 8*a* South Parade, Bedford Park, W. 4.

1917. Reeve, Capt. John Sherard (Grenadier Guards); Leadenham House, near Lincoln,

1903. Renaut, William E.; Royal Academy of Music, York Gate, Marylebone Road, N.W. 1.

315 1908. Richardson, Norman Frederic, F.R.G.S.; "Lynton," Brigstock Road, Thornton Heath, Surrey.

1907. Richmond, Herbert William, M.A., F.R.S.; King's College, Cambridge.

1895. Rickett, Charles Boughey, F.Z.S.; 27 Kendrick Road, Reading, Berks.

1896. Rippon, Lt.-Col. George, F.Z.S.; United Service Club, Pall Mall, S.W. 1.

1907. Ritchie, Archibald Thomas Ayres; Magdalen College, Oxford; and Overstrand, near Cromer, Norfolk.

320 1902. Rivière, Bernard Beryl, F.R.C S.; St. Giles's Plain, Norwich, Norfolk.

1898. Robinson, Herbert C., C.M.Z.S.; Selangor State Museum, Kuala Lumpur, Federated Malay States.

1912. Robinson, Herbert William, F.Z.S.Scot.; Patchetts, Caton, near Lancaster.

1917. Robinson, Sydney Maddock; 1 Leeds Road, Rangoon, Burma.

1896. Rogers, Lt.-Col. John Middleton, D.S.O., F.Z.S. (late 1st Dragoons); Riverhill, Sevenoaks, Kent.

325 1913. Rogers, Reginald Nankivell; Carwinion, near Falmouth, Cornwall.

1893. Rothschild, Lionel Walter, Lord, D.Sc., Ph.D., F.R.S., F.Z.S.; Zoological Museum, Tring, Herts. (*Committee.*)

1894. Rothschild, The Hon. Nathaniel Charles, M.A., F.Z.S.; Arundel House, Kensington Palace Gardens, W. 8.

1907. Russell, Capt. Conrad George Edward, F.Z.S. (Beds. Yeomanry); 2 Audley Square, W. 1.

1910. Russell, Harold, F.Z.S.; 16 Beaufort Gardens, Chelsea, S.W. 3.

Date of Election.

330 1883. St. Quintin, William Herbert, F.Z.S.; Scampston Hall, Rillington, Yorkshire.

1903. Sandeman, Lt.-Col. Robert Preston (R. Gloucester Hussars); Dan-y Parc, Crickhowell, S. Wales.

1889. Sapsworth, Arnold Duer, F.Z.S.; 30 Sussex Place, Regent's Park, N.W. 1.

1902. Sargeaunt, Arthur St. George; Exbury, Padstow, Cornwall.

1904. Sargent, James; 76 Jermyn Street, S.W. 1.

335 1914. Sauer, Dr. Hans, F.Z.S.; Bath Club, Dover Street, W. 1.

1909. Savage, The Rev. Ernest Urmson; The Vicarage, Levens, Milnthorpe, Westmoreland.

1891. Sclater, William Lutley, M.A., F.Z.S.; 10 Sloane Court, Chelsea, S.W. 1. (*Editor.*)

1908. Seppings, Major John William Hamilton, A.P.D.; Detachment Command Pay Office, Durban, Natal, S. Africa.

1899. Serle, The Rev. William, M.A., B.D.; The Manse, Duddingston, Edinburgh.

340 1901. Seth-Smith, David, F.Z.S.; 34 Elsworthy Road, South Hampstead, N.W. 3. (*Committee.*)

1904. Seth-Smith, Leslie Moffat, B.A., F.Z.S.; Tangley, Caterham Valley, Surrey; and Kampala, Uganda.

1909. Seton, Malcolm Cotter Cariston; 13 Clarendon Road, Holland Park, W. 11; and Union Club, Trafalgar Square, S.W. 1.

1899. Sharman, Frederic, F.Z.S.; 47 Goldington Road, Bedford.

1865. Shepherd, The Rev. Charles William, M.A., F.Z.S.; Trottiscliffe Rectory, Maidstone, Kent.

345 1917. Shipton, Capt. William, M.B., B.C., R.A.M.C.; The Square, Buxton, Derbyshire.

1908. Smalley, Frederic William, F.Z.S.; Cove Hall, North Cove, nr. Beccles, Suffolk.

1914. Smith, Major John Lindsay (Indian Army); Supply & Transport Corps, Commdt. Camel Corps, Multan, Punjab, India.

1906. Snouckaert van Schauburg, Baron René Charles; Doorn, Holland.

1903. Sparrow, Lt.-Col. Richard, F.Z.S. (7th Dragoon Guards); Rookwoods, Sible Hedingham, Essex.

350 1906. Stanford, Staff-Surgeon Charles Edward Cortis, B.Sc., M.B., R.N.; 94 Jermyn Street, S.W. 1.

Date of
Election.

1910. Stanford, Edward Fraser; c/o Messrs. Edward Stanford, Ltd., 12–14 Long Acre, W.C. 2.

1913. Stanford, Henry Morrant; c/o Messrs. Edward Stanford, Ltd., 12–14 Long Acre, W.C. 2.

1913. Stanford, John Keith; c/o Messrs. Edward Stanford, Ltd., 12–14 Long Acre, W.C. 2.

1915. Staples-Browne, Capt. Richard Charles, B.A., F.Z.S. (New Zealand Med. Corps); Bampton, Oxon.

355 1900. Stares, John William Chester; Portchester, Hants.

1902. Stenhouse, John Hutton, M.B., R.N.; Royal Naval Hospital, Plymouth.

1910. Stevens, Herbert; Gopaldhara, Mirik P.O., Kurseong, Darjiling Himalayan Rly., India.

1906. Steward, Edward Simmons, F.R.C.S.; 30 Victoria Avenue, Harrogate, Yorks.

1914. Stewart, John; Mainshill, Beith, Ayrshire.

360 1917. Stoneham, Capt. Hugh Frederic (1st Battn. East Surrey Regt. and Signal Service R.E.); "Stoneleigh," Reigate, Surrey.

1914. Stresemann, Erwin; Residenzstrasse 42, Dresden, Germany.

1881. Studdy, Col. Robert Wright (late Manchester Regiment); Waddeton Court, Brixham, Devon.

1887. Styan, Frederick William, F.Z.S.; Stone Street, near Sevenoaks, Kent.

1914. Sutherland, Lewis Robertson, M.B., C.M., Professor of Pathology, University of St. Andrews, N.B.; Wellgate House, West Newport, Fifeshire.

365 1907. Swann, Geoffrey; 11 Onslow Crescent, S.W. 7.

1905. Swann, Harold, F.Z.S.; 9 Evelyn Gardens, S.W.

1887. Swinburne, John.

1882. Swinhoe, Col. Charles, M.A., F.L.S., F.Z.S.; 4 Gunterstone Road, West Kensington, W. 14.

1884. Tait, William Chaster, F.Z.S.; Entre Quintas 155, Oporto, Portugal.

370 1911. Talbot-Ponsonby, Charles George; 5 Crown Office Row, Temple, E.C. 4.

1911. Tatton, Reginald Arthur; Cuerden Hall, Bamber Bridge, Preston, Lancs.

1914. Tavistock, Hastings William Sackville, Marquis of, F.Z.S.; Woburn Abbey, Bedfordshire.

Date of Election.

1905. Taylor, Lionel Edward, F.Z.S.; Bankhead, Kelowna, British Columbia.

1886. Terry, Major Horace A. (late Oxfordshire Light Infantry); Compton Grange, Compton, Guildford, Surrey.

375 1916. Thomasset, Bernard Charles, F.Z.S.; The Manor House, Ashmansworth, near Newbury, Berks.

1904. Thompson, Major William R., R.G.A.; Ravello, Carlton Road, Weymouth.

1911. Thomson, A. Landsborough, M.A.; Castleton House, Old Aberdeen, Aberdeen.

1900. Thorburn, Archibald, F.Z.S.; 66 Murrayfield Gardens, Edinburgh.

1893. Thorpe, Dixon L.; Loshville, Etterby Scaur, Carlisle, Cumberland.

380 1903. Ticehurst, Claud Buchanan, M.A., M.D., M.R.C.S.; Grove House, Lowestoft, Suffolk.

1894. Ticehurst, Norman Frederic, M.A., M.B., F.R.C.S., F.Z.S.; 24 Pevensey Road, St. Leonards-on-Sea, Sussex.

1902. Townsend, Reginald Gilliat, M.A.; Buckholt, West Tytherley, Salisbury, Wilts.

1914. Treatt, Chaplin Court; British Museum (Natural History), Cromwell Road, S.W. 7.

1893. Trevor-Battye, Aubyn, F.Z.S.; Ashford Chace, Petersfield, Hants; and Royal Societies Club, St. James's Street, S.W. 1.

385 1913. Tuckwell, Edward Henry, F.Z.S.; Berthope, Compton, near Guildford, Surrey.

1911. Tyrwhitt-Drake, Hugh Garrard, F.Z.S.; Cobtree, Sandling, Maidstone, Kent.

1864. Upcher, Henry Morris, F.Z.S.; Sheringham Hall, Cromer, Norfolk.

1910. Van Someren, Dr. Robert Abraham Logan; Jinja, Uganda, British East Africa.

1912. Van Someren, Dr. Victor Gurnet Logan; Uganda Medical Staff, c/o Post Office, Nairobi, British East Africa.

390 1908. Vaughan, Matthew; The Limes, Marlborough, Wilts.

1906. Vaughan, Commdr. Robert E., R.N.; 6 Chalfont Court, Clarence Gate, Regent's Park, N.W. 1.

1913. Venning, Capt. Francis Esmond Wingate; c/o O.C. Depot, 31st Punjabis, Rawalpindi, India.

Date of Election.

1881. Verner, Col. William Willoughby Cole (late Rifle Brigade); Hartford Bridge, Winchfield, Hants; and United Service Club, S.W. 1.

1902. Wade, Edward Walter; Melton Road, North Ferriby, East Yorks.

395 1886. Wade-Dalton, Col. H. D.; Hauxwell Hall, Finghall, R.S.O., Yorkshire.

1916. Wait, Walter Ernest (Ceylon Civil Service); The Residency, Puttalam, Ceylon.

1914. Wall-Row, John; 51 Courtfield Gardens, S.W.

1895. Wallis, Henry Marriage; Ashton Lodge, Christchurch Road, Reading, Berks.

1899. Walton, Lt.-Col. Herbert James, M.D., F.R.C.S., C.M.Z.S., I.M.S.; c/o Messrs. King, King & Co., P.O. Box No. 110, Bombay, India.

400 1872. Wardlaw-Ramsay, Col. Robert George, F.Z.S.; Whitehill, Rosewell, Midlothian. (*President.*)

1903. Watt, Hugh Boyd, F.Z.S.; 12 Great James Street, Bedford Row, W.C. 1.

1912. Wells, Charles Henry; Broomfield, Brookhouse Hill, Fulwood, Sheffield.

1912. Wenner, Max Victor; Burnside, Prestbury, near Macclesfield, Cheshire.

1913. Whistler, Hugh, F.Z.S. (Indian Police); Battle, Sussex; and c/o Messrs. King, King & Co., Bombay, India.

405 1891. Whitaker, Joseph I. S., F.Z.S.; Malfitano, Palermo, Sicily.

1909. White, Henry Luke; Belltrees, Scone, New South Wales, Australia.

1912. White, Capt. Samuel Albert; Wetunga, Fulham, South Australia.

1903. White, Stephen Joseph, F.Z.S.; Merok, Chiltern Road, Chesham Bois, Chesham, Bucks.

1912. Whymper, Samuel Leigh; Oxford Mansions, Oxford Street, W.; and Oriental Club, Hanover Square, W. 1.

410 1914. Wickham, Percy Frederic; c/o Messrs. Thos. Cook & Son, Rangoon, Burma.

1898. Wiglesworth, Joseph, M.D., F.R.C.P.; Springfield House, Winscombe, Somerset.

1915. Wild, Oliver Hilton; Applegarth, Queen's Road, Cheltenham, Gloucestershire.

Date of Election.

1894. Wilkinson, Johnson; Vermont, Huddersfield, Yorkshire.

1912. Wilkinson, William Arthur, F.Z.S.; Dumcrieff, Tudor Hill, Sutton Coldfield, Warwickshire.

415 1916. Williamson, Walter James Franklin, F.Z.S. (Financial Adviser to the Government of Siam); Bangkok, Siam.

1897. Wilson, Allan Read, B.A., M.B., B.Ch.; Eagle House, Blandford, Dorset.

1888. Wilson, Charles Joseph, F.Z.S.; 34 York Terrace, Regent's Park, N.W. 1.

1897. Witherby, Harry Forbes, F.Z.S.; 3 Cannon Place, Hampstead, N.W. 1.

1908. Witherington, Gwynne; 19 Sumner Place, South Kensington, S.W. 7.

420 1899. Wollaston, Alexander Frederick Richmond, B.A.

1912. Wood, Martin Stanley, M.D., R.A.M.C.; Cheadle Royal, Cheadle, Cheshire.

1917. Woodford, Capt. Charles Edward Montgomerie (1st Battn. Sherwood Foresters); 8 Dry Hill Park Road, Tonbridge, Kent.

1916. Woodford, Charles Morris, C.M.G.; The Grinstead, Cowfold, Sussex.

1912. Woodhouse, Cecil, M.D.; Chetnole, Sherborne, Dorset.

425 1902. Workman, William Hughes; Lismore, Windsor, Belfast, Ireland.

1912. Wormald, Hugh; Heathfield, Dereham, Norfolk.

1904. Wright, William Crawford; Roslyn, Marlborough Park, N., Belfast, Ireland.

1908. Wynne, Richard Owen; Foulis Court, Fair Oak, Hants.

1895. Yerbury, Lt.-Col. John William (late R.A.), F.Z.S.; 2 Ryder Street, St. James's, S.W.; and Army and Navy Club, S.W. 1.

430 1916. Zambra, Rag. Cav. Vittorio; Corso Umberto, I. 49, Rome, Italy.

Extra-Ordinary Member.

1899. Godwin-Austen, Lt.-Col. Henry Haversham, F.R.S., F.Z.S.; Nore, Hascombe, Godalming, Surrey.

Date of Election.

Honorary Members.

1907. Allen, Joel Asaph, Ph.D., F.M.Z.S.: American Museum of Natural History, Central Park, New York, U.S.A.
1914. Bianchi, Dr. Valentine; Imperial Zoological Museum, Petrograd, Russia.
1917. Chapman, Frank Michler; American Museum of Natural History, Central Park, New York, U.S.A.
1872. Finsch, Prof. Dr. Otto; Leonhardplatz 5, Brunswick, Germany.
5 1893. Reichenow, Dr. Anton; Museum für Naturkunde, Invalidenstrasse, Berlin, Germany.
1915. Richmond, Charles Wallace; United States National Museum, Washington, D.C., U.S.A.
1903. Ridgway, Robert, C.M.Z.S.; Smithsonian Institution, Washington, D.C., U.S.A.
1890. Salvadori, Count Tommaso, M.D., F.M.Z.S.; Royal Zoological Museum, Turin, Italy.
1914. Schalow, Prof. Herman; Hohenzollerndamm 50, Berlin-Grunewald, Germany.

Honorary Lady Members.

1910. Bate, Miss Dorothea M. A.; Bassendean House, Gordon, Berwickshire.
1911. Baxter, Miss Evelyn Vida; The Grove, Kirkton of Largo, Fifeshire.
1910. Bedford, Mary, Duchess of, F.Z.S.; Woburn Abbey, Beds.
1916. Haviland, Miss Maud D.; Lake Farm, Maidenhead Thicket, Berks.
5 1915. Jackson, Miss Annie C.: Swordale, Evanton, Ross-shire.
1911. Rintoul, Miss Leonora Jeffrey; Lahill, Largo, Fifeshire.
1915. Snethlage, Dr. Emilie: Goeldi Museum, Pará, Brazil.
1910. Turner, Miss Emma Louisa, F.Z.S.; Cranbrook Lodge, Cranbrook, Kent.

Colonial Members.

1904. Campbell, Archibald James; Custom House, Melbourne, Australia.

Date of Election.

1908. Farquhar, John Henry Joseph, B.Sc., N.D.A.; Assistant Conservator of Forests, Calabar, Southern Nigeria, West Africa.

1910. Fleming, James H., C.M.Z.S.; 267 Rusholme Road, Toronto, Canada.

1909. Haagner, Alwin Karl, F.Z.S.; Director of the Zoological Gardens, Box 754, Pretoria, South Africa.

5 1908. Hall, Robert, F.L.S., C.M.Z.S.; c/o Tasmanian Museum, Hobart, Tasmania.

1914. Leach, John Albert, M.A., D.Sc.; c/o Education Department, Melbourne, Australia.

1903. Legge, Col. W. Vincent; Cullenswood House, St. Mary's, Tasmania.

1905. Macoun, John, M.A., F.R.S.C.; Naturalist to the Geological Survey of Canada, Ottawa, Canada.

1907. Swynnerton, Charles Francis Massy, F.L.S.; Gungunyana, Melsetter, South Rhodesia.

Foreign Members.

1909. Alphéraky, Sergius N.; Imperial Academy of Science, Petrograd, Russia.

1917. Brasil, Prof. Dr. Louis; Musée d'Histoire Naturelle, Caen, France.

1880. Bureau, Dr. Louis; École de Médecine, Nantes, France.

1906. Büttikofer, Dr. Johannes, C.M.Z.S.; Director of the Zoological Garden, Rotterdam, Holland.

5 1906. Buturlin, Sergius A.; Wesenberg, Esthonia, Russia.

1875. Doria, Marchese Giacomo, F.M.Z.S.; Strada Nuova 6, Genoa, Italy.

1914. Hellmayr, Carl E.; Wittelsbacherstrasse 2 III., Munich, Germany.

1902. Ihering, Dr. Herman von, C.M.Z.S.; Hansa de Joinville, State of Catharina, Brazil.

1914. Lönnberg, Prof. Dr. A. J. Einar, F.M.Z.S.; Director of the Zoological Museum, Stockholm, Sweden.

10 1886. Madarász, Dr. Julius von; National Museum, Budapest, Hungary.

1903. Martorelli, Prof. Dr. Giacinto; Museo Civico di Storia Naturale, Milan, Italy.

Date of Election.

1894. Menzbier, Prof. Dr. Michael, C.M.Z.S.; University for Women, Devitchje, Pola, Moscow, Russia.

1905. Oberholser, Harry Church; United States National Museum, Washington, D.C., U.S.A.

1900. Reiser, Dr. Otmar; Landes Museum, Sarajevo, Bosnia, Austria.

15 1900. Stejneger, Leonhard, C.M.Z.S.; Smithsonian Institution, Washington, D.C., U.S.A.

1914. Stone, Dr. Witmer; Academy of Natural Sciences, Philadelphia, Pa., U.S.A.

1902. Sushkin, Dr. Peter, C.M.Z.S.; Zootomical Cabinet and Museum, The University, Kharkov, Russia.

1911. Tschusi zu Schmidhoffen, Victor, Ritter von; Villa Tännenhof, bei Hallein, Salzburg, Austria.

1917. Van Oort, Dr. Eduard Daniel; Museum of Natural History, Leyden, Holland.

20 1896. Winge, Herluf, C.M.Z.S.; University Zoological Museum, Copenhagen, Denmark.

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THE IBIS.

TENTH SERIES.

Vol. V. No. 1. JANUARY 1917.

I.—*Notes on Birds observed at Erzerum.* By P. J. C. McGregor, M.B.O.U., lately H.M. Consul for Palestine.

The following list of birds observed at Erzerum is compiled from a diary kept regularly during a residence in that town from January 1910 to April 1912, and is supplemented by a few notes regarding the times of arrival and departure of some species.

It should be stated at the outset that the list is necessarily far from complete, as, in addition to the limitations imposed by my ordinary duties, it was found impossible to make a systematic exploration of the Kara Su marshes, which is precisely the part of the Erzerum plateau where bird-life is probably most abundant. The notes relate, in fact, almost exclusively to the birds to be met with in a radius of five or six miles from the town itself, and they are offered to the reader merely on account of the comparative meagreness of previous observations in this region.

Erzerum is situated at a height of about 6100 feet on the southern side of the vast and desolate plain watered by the Kara Su, an affluent of the Euphrates. It is about 160 miles in a direct line from Trebizond and 120 miles from Kars. To the north the plain is bounded by lofty mountains, the principal summits of which are Kop Dagh and Dumla Dagh, while immediately behind the town the *massif*, comprising Palantukyen ("The wearer-out of pack-saddles") and Eyer Dagh ("Saddle Mountain"), rises steeply to a height of 10,000 feet.

The climate is of extreme rigour, as snow falls in the town in October and snow-storms may occur late in June, although a thaw generally begins in April. Intense cold prevails for at least four months, and blizzards are of frequent occurrence; but the brief summer is hot and dry, dew at night being almost unknown.

The entire region may be characterized as treeless, except for a few poplars and willows in the town itself and in some sheltered nooks among the mountains, and nothing taller than the henbane is produced by the light yellow loam of the plain. A small crop of stunted oats is grown in summer, and there are extensive vegetable-gardens to the north of the town, which are a favourite haunt of spring and autumn migrants. The flora comprises a great variety of vetches, bulbous plants, and thistles of brilliant colouring, and the early summer clothes the plain and the mountain slopes with green for a brief spell; but the general note is one of tawny desolation and aridity.

Under these circumstances the scantiness of bird-life cannot surprise. In the dead winter one sees practically nothing but Jackdaws, Sparrows, and an occasional Magpie or Tit in the town, while flocks of Field- and Shore-Larks seek for a living on the roads outside. The spring migration is usually accomplished under conditions resembling those of a severe winter in England, and, although the nesting of Starlings, Wheatears, Swifts, Kestrels, and Rock-Sparrows gives a certain animation to the summer months, it is not until autumn that the numbers and movements of the birds become conspicuous enough to enliven these solitudes. At that season the defile known as the Kyrk Deïrmen Boghaz ("The Defile of the Forty Mills"), situated about three miles west of the town, becomes one of the most interesting observation-posts in the vicinity on account of its running waters and small grooves of trees, which make it an attractive haven of rest for thousands of migrants.

In putting together these notes I have, in the main, adhered to the nomenclature adopted in the recently published B. O. U. list, and I desire to express my obligations to Dr. E. Hartert and Dr. W. Eagle Clarke, who have kindly read through the MS. and given me invaluable encouragement and assistance.

Corvus frugilegus. Rook.

In 1910 I noticed the first Rook on March 16, and on the succeeding days, the weather being sunny and windless, I saw small parties winging their way northwards towards the Kop Dagh Pass. It was not, however, until the 20th of the month that the Rooks appeared in numbers in the town and neighbourhood, and on the 30th they had begun to repair their nests. They seem to take their departure early in October, the last flock having been observed on October 12, 1911; but I have seen stray birds in company with Jackdaws as late as the 1st of December.

Corvus monedula. Jackdaw.

The ramparts, as well as the mosques and other public buildings, swarm with these birds and every house shelters a pair or two in its walls or halfway down its chimney. The Erzerum Jackdaws all belong to one pronounced type, the nuchal collar being of a very silvery grey, passing in many instances into pure white, and they would thus appear to belong to the subspecies *C. m. collaris.* Partial albinism is not uncommon, and one bird which haunted my house had half the pinions of the right wing snowy white.

Most of the Jackdaws seem to remain paired during the winter, and when, as appears often to be the case, food is scarce, they present a doleful picture, perching with ruffled plumage in the bare poplar trees, or on the projecting beam-ends with which every house bristles. Towards evening, however, the entire Jackdaw population rises in a vast black cloud and, mingling with a certain proportion of Rooks, proceeds to execute elaborate and noisy manœuvres over the plain till just before nightfall, when all return gleefully to their quarters.

Nest-building was begun in 1910 about the middle of March, and when during the first week in April the snow began to disappear from the fields, they were to be seen foraging in company with Lapwings, Rooks, and Starlings. A return of winter, however, interfered with their nesting-arrangements, and it was the 30th of April before either Rooks or Jackdaws had eggs. During May and June they find abundant nourishment in the fields and vegetable-gardens near the town; but later on they seem to extend their daily journey to the swamps of the Kara Su, and in my camp it was a rare occurrence to observe a Jackdaw. My impression is that they do not frequent the villages, but during a visit to Hassan Kala'a, about fifteen miles east of Erzerum, I found them in numbers sharing the ruins of the Citadel with Swallows, Wheatears, and Starlings.

Pica pica. Magpie.

Magpies may be met with throughout the year, but they are not abundant and do not collect in flights as in the Balkan countries. Only on one occasion—and that was on March 28, 1911—did I see a flock; it was composed of about twenty individuals, and on that day isolated specimens were noticeably numerous. In the depth of winter they are constantly to be seen in the town and are an enlivening feature in the roof landscape.

Sturnus purpurascens. Starling.

Immense numbers breed in the town of Erzerum and at Hassan Kala'a, where the roughly built stone-houses and the extensive fortifications afford abundance of nesting accommodation. The Starlings first appear in large flocks about the 15th of March, and from that date onwards every patch of soil laid bare by the increasing warmth of the sun is crowded with these birds in company with Lapwings, Rooks, Jackdaws, Pipits, and Rock-Doves, the

Starlings being, however, the most numerous. A little later they take to flighting in masses, and towards sundown every day they almost blacken the sky before settling for the night, when they throng the branches of the poplars, clothing them for the nonce in a sable foliage of sinister aspect against the background of endless mud-coloured flat roofs. The young are fledged about the end of May, and early in June the Starlings abandon the town for the cultivated fields and the Kara Su marshes, where they spend the summer. Migration seems to take place in October, but occasional flights and isolated individuals may be observed as late as the 19th of November, and I noted a couple on the 27th of December, 1911, during a spell of comparatively genial weather.

Pastor roseus. Rose-coloured Pastor.

On May 4, 1910, I observed seven or eight among a flock of Starlings close to the Tortum Gate, and two days later they were at the same spot, but by themselves. Again, on the 21st of June, a flock of about thirty flew over my house.

In 1911, on June 1, I observed about twenty birds at Boghaz, and a solitary individual was recorded near my camp on August 8.

Oriolus oriolus. Golden Oriole.

I observed in 1910 one, in green plumage, on September 3, and two, also in green plumage, on September 12. On August 30, 1911, saw an adult male.

Chloris chloris. Greenfinch.

One was observed on April 22, 1910.

Carduelis carduelis. Goldfinch.

So far as I was able to observe, the Goldfinch does not breed in the Erzerum district, which, indeed, offers scanty inducement to them to do so, orchards and bushes not being a feature of the local vegetation.

In 1910, I noted, on March 16 and 18, that small flights were singing among the trees in the Armenian cemetery, and others were observed on March 21 and April 8.

Another flock came under my notice on April 15 after a prolonged blizzard; but none were observed during the summer, the next records being October 26 and November 22, when I saw a few, and December 29, when I saw a couple.

In 1911 I noticed two on February 8 and one on February 10, the weather at that time being abnormally mild.

Passer domesticus. House-Sparrow.

The House-Sparrow is abundant in the town throughout the year, nesting not only in the willows and poplars, but in crevices of the rudely built stone houses and in the town ramparts. I very seldom observed it during my sojourn in camp and it seems, as a rule, to avoid the open country. On one occasion, however, I saw a small flock being chased by a Sparrow-Hawk near my camp (September 8, 1910).

Petronia petronia exigua. Rock-Sparrow.

On April 11, 1910, the weather being boisterous but sunny, my attention was arrested by a loud chorus of Sparrow-like chirps from a number of small birds perched on the wall of the Mussulman cemetery, and a closer examination soon enabled me to identify the vocalists as Rock-Sparrows. Their numbers increased rapidly during the following days, despite heavy snowstorms, and by the end of May, not only the cemeteries and fortifications, but the rocky gorges and boulder-strewn hill-sides resounded with their querulous chirping. I found the Rock-Sparrow in great numbers among the ruins of the Citadel at Hassan Kala'a, and it is one of the most conspicuous summer residents at Erzerum. They appear to take their departure comparatively early, as I never saw any after the 17th of August.

Montifringilla alpicola. Snow-Finch.

The Snow-Finch's melodious call is occasionally to be heard among the rocky slopes between Erzerum and the Devé Boyun Pass. I first saw the bird on April 27, 1910, and on June 24 I found a pair feeding their young in a nest built in a hole in a bank about five feet above the road leading to that Pass.

Fringilla cœlebs. Chaffinch.

Fairly common as a migrant in spring and autumn. The earliest date of observation is March 16, 1911, and no spring migrants were noted after April 16. The sexes were always in separate flights, but on April 2, 1910, a mixed flock of Chaffinches and Bramblings was seen. The return passage was first noticed on August 20, 1910, but large flights were recorded in October of each year, and in 1910 and 1911 I noted having seen large flights of hens on November 8.

Fringilla montifringilla. Brambling.

In 1910 I observed these birds twice—once with a flight of Chaffinches on April 2, and again on the rather advanced date of June 4.

Carpodacus rubicilla. Caucasian Rose-Finch.

This splendidly plumaged bird first came under my observation on June 9, 1910, when I noticed three pairs at Kyrk Deirmen; and I am inclined to think that they constituted the entire stock in that neighbourhood, which was the one spot within many miles affording the conditions of habitat supposed to be sought after by the Rose-Finch, namely, a sheltered gorge with running water, groves of trees, and a sufficiency of lush herbage.

Conspicuous as the cock-bird is, my attention was first arrested by his song, which resembles that of the Blackcap in quality, but is less prolonged and is repeated at short intervals while the songster remains concealed among the foliage. I frequently saw these birds in the neighbourhood and, as two pairs were to be found regularly in the willows in my camp-enclosure during June and July, I am convinced that they were nesting there, but diligent search failed to reveal their nest, and I never saw the young—in fact, the birds completely disappeared in August. They were rather restless in their movements, but not shy, the cock-bird constantly flitting from tree to tree and pouring out his flute-like notes, often within a few yards of where I was sitting, while the hen was seldom seen except towards evening, hopping among the lower branches with her mate and feeding on grass-seeds or an occasional green caterpillar from the willow-leaves.

Rhodopechys sanguinea. Crimson-winged Bullfinch.

From the beginning of May onwards small flights are frequently to be seen in the low-lying fields and waste land. They are restless and shy, constantly flitting about with a plaintively musical call. The rosy-pink colour of their quills is very striking when a whole party rises from the brown earth. Later on they frequent the same sort of ground as the Ortolans, and I have often seen numbers of them feeding with Sparrows outside the primitive country flour-mills. My impression is that they ascend a considerable height into the mountains and that they have two broods, as I have seen family-parties with young hardly able to fly as late as August 20. I never came across any after September 6. So far as I was able to observe, their song is a phrase of four or five notes reminiscent of the Robin.

Emberiza calandra. Corn-Bunting.

One of the most prominent and characteristic features of the summer landscape. The arid and unlovely stretches of waste land around the town are studded with tall bushes of henbane, and every one of these sinister-looking plants serves as a post of observation for the quarrelsome Corn-Bunting, whose strident tones fitly voice the melancholy of the scene. It arrives at the end of April and is also abundant in the Passen Plain, taking its departure from Erzerum in the first week of August.

Emberiza citrinella. Yellow Hammer.

In three successive years I saw small flocks between the 16th and the 30th of March, and on May 14, 1911, I observed a solitary specimen.

Emberiza melanocephala. Black-headed Bunting.

Fairly common at Hassan Kala'a and less so in certain parts of the Erzerum plateau. Only once seen near the town (May 20, 1910).

Emberiza cia. Meadow-Bunting.

On the 12th and 13th of April, after a heavy south-west gale, seven or eight were observed in a field outside the town, and on October 31 of the following year there were several in the Kyrk Deïrmen gorge.

Emberiza hortulana. Ortolan.

Fairly abundant on the lower slopes of the hill south of the town. They appear in the last days of April and seem to leave about September 15.

Emberiza pusilla. Little Bunting.

Three were observed on March 21, 1910, among a flock of Yellow Hammers.

Emberiza schœniclus. Reed-Bunting.

One was observed in the vegetable-gardens outside the walls on March 18, 1910.

Alauda arvensis. Skylark.

During the phenomenally severe winter of 1910, Skylarks congregated in great numbers in the neighbourhood of the town, associating frequently with Shore-Larks and Calandra Larks, and apparently picking up their food among the droppings of pack-animals until milder weather laid bare patches of earth in some favoured spots. Despite the rigorous climatic conditions the Larks were always plump enough to be a welcome variety in one's bill-of-fare. Towards the end of March the flocks began to disperse, and the birds were to be heard singing gaily in the plain; but a return of wintry weather drove them back in flocks to the town, and it was not until about the 20th of April that they finally scattered. I find that I observed them singing on the Top Dagh and at Kyrk Deïrmen as late as June 9, but after that date no record occurs till October 23, when small flocks again began to form outside the town ramparts. It was not, however, until winter had really set in that large numbers were constantly to be met with.

Galerida cristata. Crested Lark.

The Crested Lark is resident throughout the year, its numbers being, however, much reduced in winter.

Melanocorypha calandra. Calandra Lark.

This species came under my observation for the first time on March 10, 1910, consorting with Sky- and Shore-Larks immediately outside the town walls, and two days subsequently I procured a specimen at the same place. I saw a few at Hassan Kala'a on June 21 and in 1911. I again observed several specimens on March 10 at Ilijé and on May 1 at Ghez, these two localities being villages on the Trebizond road about an hour's drive from Erzerum.

Otocorys alpestris. Shore-Lark.

My first acquaintance with the Shore-Lark was made during my sleigh-journey from Kars through Sary Kamysh and Kara Urgan to Erzerum in January 1910. These graceful birds were almost the only living creatures that were to be seen in this wind-swept waste of snow, and they congregated in considerable numbers by the roadside, uttering their plaintively musical call as they flitted aside on the approach of the sledge.

During the rigour of the winter months they were to be met with in numerous scattered flocks outside the town walls, but towards the end of March, when a spell of milder weather set in, they would disappear, to return with the first blizzard and linger till nearly the end of April. From May onwards they were to be met with in pairs at an altitude of at least several hundred feet above the town.

I should like to point out that, while specimens shot by me answered in every respect to Dresser's description of *O. alpestris* ('Manual of Palæarctic Birds'), inasmuch as the feathers of the throat and forehead were yellow, I also procured specimens of *O. penicillata,* and all the birds observed near Erzerum during the summer seemed to belong to the latter type. My impression, however, is that in winter *O. alpestris* was in the majority. I also noted the Shore-Lark was the first of its family to put in an appearance in winter, being abundant about the end of December; whereas the Skylark did not appear till more than a month later.

Otocorys penicillata.

As already mentioned, I observed and procured specimens of this species occasionally in winter, and it seemed to be the predominating type during the summer months.

Motacilla alba. White Wagtail.

From about the 20th of March till April 18 small numbers are to be seen, and a few probably remain in the vicinity of the marshes, but I never came across any near the town in summer. The autumn migration becomes noticeable at the end of September, and fairly large flocks pass through until the middle of October. They seem to arrive in the evening and were seldom observed in the daytime.

Motacilla boarula. Grey Wagtail.

Never observed earlier than the 5th of August, and then either singly or in pairs near running water. Large flocks, however, appeared between the 10th and the 16th of September, and afterwards stray individuals were to be met with up to October 18.

Motacilla flava. Blue-headed Wagtail.

Large flocks appeared between August 23 and September 20, usually following the sheep in company with *M. boarula.* Several specimens were shot, among them being a male which seemed to answer closely to Hartert's description of *M. f. borealis.* In 1911, I recorded them as abundant on October 3.

Motacilla feldeggi. Black-headed Wagtail.

Common in the marshes and around Ilijé. Was first seen on May 5.

Anthus trivialis. Tree-Pipit.

The Tree-Pipit was observed in small numbers between April 11 and 19, and again in autumn from the beginning of August till the first days of October.

Anthus pratensis. Meadow-Pipit.

Only observed on migration in early April.

Sitta neumayeri (Michah.). Rock-Nuthatch.

Saw one pair among the rocks at Hassan Kala'a, in the Passen Plain, on June 24, 1910.

Parus major. Great Tit.

A few pairs were occasionally to be seen near and in the town from the end of October till towards the end of February, when they disappeared. Not observed in summer.

Parus cæruleus. Blue Tit.

A few were observed in February and March, and again in November of each year.

Ægithalus pendulinus. Penduline Titmouse.

Several pairs bred regularly among a thicket of willows overhanging a mountain streamlet not far from Erzerum.

Lanius minor. Lesser Grey Shrike.

Seldom seen in summer, but was very common as a migrant. Lesser Shrikes appear at the beginning of May, but are not so noticeable as in autumn, when small parties begin to pass about August 20 and may be observed almost daily till the first week in September. They used to drop into the trees exactly at sunset, and most of them had disappeared before dawn.

Lanius collurio. Red-backed Shrike.

This species begins to arrive a few days earlier than the Lesser Shrike and remains a little later, but in other respects calls for no special remark. In both cases the immature birds seem to precede the adults in the autumn migration.

Sylvia communis. Whitethroat.

From the last week in April till the first week in May Whitethroats appeared in small numbers in the vegetable-gardens and by the water-courses in the plain, but I never saw any in summer. The autumn passage began between August 7 and 10 and continued for about six weeks, the latest record being September 19. I never observed more than a very few at one time.

Sylvia curruca. Lesser Whitethroat.

Was only once observed in spring, on May 14, 1911, but is fairly common on passage in autumn. The earliest date recorded at the latter season is August 2, 1911, after which none appeared till August 24; but from the beginning of September they were to be observed almost daily until almost the end of the month. The largest numbers were observed about September 14–16.

Sylvia simplex. Garden-Warbler.

On September 4, 1910, I saw two at Baghaz, one of which was shot.

Sylvia atricapilla. Blackcap.

Observed one adult male on May 15, 1911.

Sylvia nisoria. Barred Warbler.

On September 7, 1910, I observed two in my camp, and a little later found a party of four in a hedge a short distance away. One of these was an adult male, and another which I shot proved to be an immature male. Several were observed on the 13th and 14th at the same spot, and on the 19th I recorded a solitary specimen.

In 1911, I observed two on May 14 and one on the following day. No more were seen till August 18, when I found half a dozen young birds among some currant-bushes near the camp. On the following day one was seen and on the 21st several. Solitary specimens were recorded on the 3rd and 5th of September.

Acrocephalus palustris. Marsh-Warbler.

In 1910 about half a dozen specimens, evidently on passage, appeared between the 23rd and the 29th of September, and I shot one.

Phylloscopus trochilus. Willow-Wren.

The earliest date on which I recorded the arrival of the Willow-Wren is April 14, 1910, none having been observed in the following year till May 1. In 1910, however, they were not seen in any numbers (two and three together) till April 15–18, and I saw none after May 5 until I went into camp, when a few were to be found among the trees at the Boghaz (the gorge below Eyer Dagh). They were abundant on passage from September 20 to October 18, the largest flights being the latest.

Phylloscopus sibilatrix. Wood-Warbler.

On October 1, 1911, I observed a Warbler which I took to be of this species.

Phylloscopus collybita. Chiffchaff.

Appeared about the 4th of April and, despite cold and snow, continued to pass steadily and in increasing numbers until the end of the month. The autumn passage began regularly about the 1st of September, and numbers were to be seen in the kitchen-gardens and in the scrub till mid-October, the latest record being the 15th of the month.

A few Chiffchaffs were noted as having been seen in May, July, and August, 1911, but it is quite possible that these may have been insufficiently identified and may have belonged to some allied species which remains to breed.

Turdus musicus. Song-Thrush.

Only seen on migration in spring. In 1910 half a dozen were observed between April 4 and 14, and in 1911 one on April 15.

Turdus iliacus. Redwing.

One was observed on April 15, 1910, after a heavy snow-storm.

Turdus merula. Blackbird.

Observed: 1910, April 4, one; 1911, October 31, several in the Kyrk Deïrmen gorge.

Monticola saxatilis. Rock-Thrush.

A certain rocky gorge near the town harboured three pairs of Rock-Thrushes each summer, and another pair nested regularly at Boghaz. They were first seen on May 2 and were among the most attractive of the summer visitors, the brilliantly clad cock-bird filling the sombre solitude with melody as he tumbled in the air before his mate or piped thoughtfully on a rock not far from the nest. The young birds were abroad foraging for themselves early in August, and I did not see any after the 15th of September.

Phœnicurus phœnicurus. Redstart.

Very abundant as a migrant, and remains to breed in small numbers. The usual date of arrival in spring is the 11th or 12th of April, and for a month afterwards hardly a day passes without a few being seen in a row of poplars near the Tortum Gate.

The fact of being under canvas in the autumn gave me a much better opportunity of witnessing the passage south-westwards, and the limited numbers observed in spring had by no means prepared me for the intensity of the return movement, which began about the 1st of September and continued without intermission till the 18th of October. At first I observed only parties of from six to twenty, mostly females and immature birds, but about the 8th the flights grew larger and included some adult males, and from the 21st of September to the 18th of October, 1910, I was able to note almost daily that they were "swarming" in the trees in my camp, in all the low vegetation in the neighbourhood, and in the outskirts of the town. They were usually more numerous in the morning and had generally disappeared early in the afternoon—but by no means invariably. Stragglers were noticed till as late as November 5.

The Redstarts near the camp were very confiding and with their fledglings were regular visitors to the tents.

Erithacus rubecula hyrcanus. Redbreast.

Observed one on September 26, 1910. In 1911, October 26, one, and October 31, one.

Luscinia luscinia. Thrush-Nightingale or Sprosser.

I am informed that this Nightingale is a summer visitor in the Erzinjan district, but am doubtful of its being other than exceptional as a breeding species in the inhospitable region of Erzerum.

In 1910, on April 14, during a snow-storm, I observed one lurking in a hedge, and another was seen near Kyrk Deïrmen on June 9. I also noticed a specimen three times between the 10th and the 17th of September, but imagine it was the same bird on each occasion.

In 1911, I saw a Sprosser on May 9, and on July 30 a bird haunted my tent all day, perching on a chair close beside me, and even alighting on the table I was writing at to pick up dead flies from a fly-paper. It paid almost daily visits to my tent till August 7, when it indulged in some throaty warbling. A Nightingale, presumably the same, was seen on August 9.

It has been suggested to me by a high authority that this species may be *L. megarhynchos africana*, but I must leave this, as also various other points that will doubtless occur to the reader, to the researches of future observers.

Cyanosylvia suecica cyanecula. White-spotted Bluethroat.

On April 8, 1910, while walking in a field where the melting snow had exposed some patches of earth, I came across a fine cock-bird in full plumage, and a few minutes later I discovered two hens, all evidently hungry and exhausted—so much so that one of them allowed itself to be carried away by a rush of water from an irrigation-channel and narrowly escaped drowning. At some distance from this spot I came across a fourth specimen, with very dull throat-markings.

My other observations in spring were as follows:—"April 11, boisterous and snowy; saw a Bluethroat ♀ at the poplars. April 15, snow last night; saw a Bluethroat ♀ in the Public Gardens. April 16, one ♀ at the poplars. April 29, one fine ♂ at the poplars. May 5, one ♀ at Ilijé."

None were observed in summer, but in the latter half of August I saw several males and females, all presumably on passage.

In 1911, the Bluethroat came under my notice only three times: between April 12 and May 1, when single individuals were observed.

Saxicola rubicola. Stonechat.

One cock-bird was observed on the 12th and 13th of April, 1910, after a strong S.W. gale, and in the following year I observed another specimen on the 26th of April.

Saxicola rubetra. Whinchat.

A rarely observed migrant, noticed once early in May, and on a few occasions between August 1 and October 1.

Œnanthe œnanthe. Wheatear.

The stony arid slopes which surround Erzerum seem to be an ideal habitat for the Wheatear, and it is one of the commonest birds during the brief summer, nesting abundantly in the rocky gorges.

The earliest date on which a Wheatear was observed was March 22, 1910, and isolated hen-birds were seen occasionally up to April 2, when the first male appeared. The numbers gradually increased until, on April 19, they could be described as "numerous" on the grassy slopes of the fortifications and on the rising ground south of the town. Both eggs and young were to be found in the first week in June. The autumn migration began about August 26, when large flights of male birds were seen. The movement then continued steadily until the end of August, my camp and the rough ground outside it being alive with Wheatears every day at sundown. From the first days of September they became much scarcer, but were constantly observed in twos and threes until long after the snow had begun to creep down from the mountain-tops and the frost was hard at nights. Most of them had disappeared by the 20th of

October, and the latest date on which Wheatears were recorded is November 3, 1911.

(I presume that the Isabelline Wheatear must occur in these regions, but I am afraid that I was not on the look-out for it and overlooked it.)

Œnanthe xanthomelæna. Black-throated Wheatear.

A few pairs bred regularly in some sheltered gullies near the town. I never saw them earlier than April 27, and I have come across newly-fledged young on the 17th of August.

Cinclus cinclus caucasicus. Caucasian Dipper.

On February 10, 1911, I found one in a ditch within the town walls.

Troglodytes troglodytes. Wren.

On October 26, 1910, I observed three Wrens in a rocky gully near the town.

Muscicapa grisola. Spotted Flycatcher.

Is common as a migrant, arriving about April 26 and returning in considerable numbers between the 5th and the 26th of September. A certain number remain to nest in the poplars in the town, and in July I have noticed fledglings near my camp and at Boghaz. The autumn migrants almost invariably made their appearance late in the afternoon and remained till about 9 or 10 next morning.

Muscicapa collaris. Collared Flycatcher.

Arrives in small numbers about April 10, and remains to breed in suitable localities. Considerable parties of young birds are to be seen in the late days of July, and from that time onwards the passage movement increased in intensity, reaching a climax about August 7, when, in 1910, I recorded them as "swarming" in my camp. They were, however, almost daily guests during the remainder of the month, though in decreasing numbers, and September had begun before the last stragglers had gone.

They were always more abundant in the morning, and they were often in company with Spotted Flycatchers.

Muscicapa semitorquata. Half-collared Flycatcher.

On April 12, 1910, after a strong S.W. gale, which had evidently compelled great numbers of migrants to interrupt their journey, I found about twenty of these Flycatchers, males and females, in a row of poplars near the Tortum Gate, and on the 15th and 17th, during snowy weather, I saw two hen-birds in different spots within the walls. I also observed single specimens on the 18th and 20th of August at my camp.

Muscicapa parva. Red-breasted Flycatcher.

On September 25, 1910, observed three in my camp and one among some trees a quarter of a mile away. None were red-breasted, but their habits and plumage left no doubt as to their identity. On the following day I saw another, likewise without a red breast, in the Boghaz, and on September 29 I saw an adult male.

Hirundo rustica. Swallow.

The Swallow is abundant in the Passen Plain and is also to be found in numbers in the villages of the Erzerum plateau; but, for some reason unknown to me, it does not frequent the town itself, where the Swifts are in exclusive possession.

The earliest dates on which I observed the Swallow were April 28 in 1910 and April 22 in 1911, and these were the forerunners of enormous flights, but it was not until about May 5 that the local birds seemed to take possession of their summer quarters. I imagine these birds began to return southwards (or, rather, south-westwards, as all the migrants did) about the middle of August, but, despite careful watch, I found their movements most baffling, many large flights seeming to take a north-eastern direction as late as after mid-September—perhaps attracted by the extensive marshes of the Kara Su. After this date, however, their direction was uniformly south, and the last flights were seen on October 10–12. A single bird was observed in the town on November 13, 1910.

Riparia riparia. Sand-Martin.

The only spots in which I found colonies of Sand-Martins were the Boghaz, near my camp, and the banks of the Neby Chai, in the Passen Plain, in the latter of which places Bee-eaters also nested.

Iynx torquilla. Wryneck.

On April 8, 1910, I put up a Wryneck in the Turkish cemetery, this being the only specimen observed in the spring. Two or three were, however, seen in August and September of each year, and I am inclined to suspect that they spend some days in the neighbourhood before continuing their journey.

Cuculus canorus. Cuckoo.

The Cuckoo arrives as early as May 15, and until early in July may be heard and seen in small numbers, not only in the few groups of trees in the district, but also in various stony gullies where the abundance of Wheatears' and Rock-Sparrows' nests is doubtless an attraction.

The Cuckoo became silent before the end of July, and was seldom seen after the 18th of August, but in 1910 I saw one in my garden in town on September 1st.

Micropus apus. Swift.

The Swifts arrive regularly on April 28–30, and seem to make their headquarters in the town, where the ruinous citadel, the many minarets, and the extensive fortifications afford ideal nesting accommodation for countless thousands. Another attraction must be the abundance of flies, not unnatural in a town where the main occupation of the inhabitants in summer is the preparation of "tezek," *i. e.* sun-dried cakes of dung, to serve as fuel during the eight months' winter. In 1910 they began to disappear on August 15, and on the 17th there was not one left, but after sundown on the same day my attention was arrested by their familiar scream, and, looking up, I saw clouds of them at an immense height, flying S.E. against the wind.

I observed smaller flights outside the town on the following days, but none after August 30.

In 1911 they arrived and departed practically on the same dates as in the preceding year.

Micropus melba. Alpine Swift.

One pair observed on May 18, 1911.

Caprimulgus europæus. Goatsucker.

At least two pairs bred in Baghaz in 1910 and were seen regularly until the 28th of September.

Merops apiaster. Bee-eater.

The first week in May sees the arrival of the Bee-eaters which abound in the Erzerum and Passen Plains, and often nest in the same places as the Sand-Martins. Their musical notes are constantly heard in the hot bright days of summer, and enormous flocks pass constantly during September, when the trees near my camp were a much-frequented roosting-place.

Upupa epops. Hoopoe.

In mid-April, when the dark streaks in the snowy mantle of the lower plain betoken the sun's increasing warmth, the Hoopoes begin to appear, either singly or in parties of five or six, and they are frequently to be seen in the desolate and extensive cemeteries or on the grassy slopes of the fortifications. They breed in fair numbers in the town and village, and I saw a good many at Hassan Kala'a in the Passen Plain. A migration movement is perceptible in the first days of August, and continues till nearly the end of September, the 27th being the latest date of observation in the unusually mild autumn of 1911.

Coracias garrulus. Roller.

The Roller was rarely observed during the spring migration (one on April 27 and one on May 14, 1911) and never in summer; but it is common in the plains of Erzinjan and

Passen, where the altitude is much lower and general conditions more favourable.

It is, however, a regular autumn visitant at Erzerum, and from the third week in August may be seen regularly, sometimes in parties of six or eight, sometimes alone. I seldom observed any after 10 A.M., and they almost invariably dropped into the trees or settled on boulders near the camp at a late hour in the afternoon or even after sunset. The passage usually continues till September 20, but in 1911 I recorded seeing two birds on October 2.

Asio accipitrinus. Short-eared Owl.

I observed one on the fortifications on April 7, 1910.

Strix aluco. Tawny Owl.

During the summer I occasionally heard a call which led me to believe that there were Wood-Owls in the neighbourhood of my camp.

Otus scops. Scops Owl.

On September 12, 1910, I shot a female at my camp. Not having heard this Owl's call during the summer, I presume it does not breed at Erzerum.

Bubo bubo (? ruthenus). Eagle-Owl.

My personal observation of the Eagle-Owl was confined to hearing its call near my tents; but on two occasions one of my servants, who was familiar with the bird, from having had charge of one in my possession in Bulgaria, saw a live Eagle-Owl being offered for sale in the town, and I was shown several stuffed specimens. The local name for the bird is identical with the German "Uhu."

Carine bactriana. Eastern Little Owl.

I secured several specimens of this Owl, and they, with all those I had an opportunity of observing closely, corresponded to the description given in Dresser's 'Manual.' They were constantly to be seen from mid-April till late August, and bred in the fortifications as well as in a rocky gully east of the town.

Gyps fulvus. Griffon Vulture.

By no means a usual sight, but could be seen occasionally in some numbers between June and September. I once saw about twenty soaring in company with Egyptian Vultures, and in the autumn of 1910 the prevalence of cattle-plague attracted them in unusual numbers.

Vultur monachus. Black Vulture.

On September 20, 1910, I saw three Black Vultures helping some Griffons and Egyptian Vultures to devour a carcass.

Neophron percnopterus. Egyptian Vulture.

Both immature and adult specimens were observed between April 29 and September 2, but the bird is by no means common. On one occasion I saw over half a dozen of them at Hassan Kala'a, where the climate is considerably more genial than that of Erzerum.

Circus æruginosus. Marsh-Harrier.

When spending a day at Ilijé on May 5, 1910, I saw one, and presume they are not uncommon in the marshes. I also saw another near my camp on September 17–19 of the same year.

Circus cyaneus. Hen-Harrier.

Observed in 1910, one male on April 4 and one female on April 7. During the latter part of September a pair haunted the neighbourhood of my camp.

Buteo desertorum. Steppe-Buzzard.

Large passages of Buzzards take place in spring and autumn, and, as far as could be concluded from observation and from specimens handled, all belonged to the species *Buteo desertorum.*

In 1910 the first record was dated April 2 ; on April 9 about thirty appeared circling over the town, and, despite snow and cold, small parties and isolated individuals continued to pass during the ensuing days, sometimes resting for hours on the tombstones in the Turkish cemeteries.

They were very seldom seen during the summer, but from August 16 they appeared in ones and twos at my camp, and on September 8, at sunset, a flock arrived from the N.E. and settled on the slopes of Eyer Dagh, a hill close by. On September 22 another flock, consisting of many hundreds, appeared in the late afternoon and, after long manœuvring over Eyer Dagh, alighted in and around my camp and at the American mission-camp about a quarter of a mile away, where there were some large trees. The travellers must have been exhausted, as they settled as thickly as Starlings on the small willows and poplars around my tents and formed a dense mass on the bare hill-side, allowing a very close approach before they shifted their position by a few yards. They were completely silent, but the night was a restless one for the inmates of the camp, as the slender branches of the trees afforded poor perching accommodation for the numbers of heavy birds that crowded them, and were constantly giving way. The result was a ceaseless crashing and fluttering, and sleep was impossible till the whole company rose and departed shortly before dawn. An exactly similar experience was repeated on the following two days and on the 25th, when enormous numbers of Buzzards arrived from the N.E. at 10.30 A.M., passing over the plain and disappearing in a S.W. direction behind Eyer Dagh. On the following day only a single straggler was seen; but on the 28th, at about an hour before sunset, the largest passage of all began and continued till some time after dark. The birds came from the N. and N.E. in flights of about 150, but the separate flights followed one another at such short intervals that there must have been several thousands in view at one time, and the stream continued without interruption for about two hours. The rear-guard settled around my tents as described above, and a most unreposeful night again ensued, although guns were fired in order to secure specimens. The last Buzzard was seen on October 16.

In 1911, no passages on this large scale were noted, but the migrations took place almost at the same dates, the passage northward having begun somewhat earlier (March 19).

Aquila heliaca. Imperial Eagle.

I seldom had the opportunity of observing this Eagle at sufficiently close quarters to enable me to speak positively concerning its identity, but I believe that I saw it occasionally, except from October to February.

Astur palumbarius. Goshawk.

One observed on September 4, 1910.

Accipiter nisus. Sparrow-Hawk.

The Sparrow-Hawk is resident in small numbers throughout the year, except in December and January, when it disappears, presumably in search of less inclement regions. The earliest date on which I observed it was January 23, 1912, and towards the end of March the increased numbers seemed to indicate a migration movement ; but in autumn there was a well-defined passage from the end of September until the first week in November, small parties of about half a dozen birds being visible. These used apparently to arrive late in the afternoon, and I noted that on September 20, 1910, a party of six alighted at dusk on the hill-side close to my camp.

The Sparrow-Hawk, like the Kestrel, nests in the tall poplars in the Armenian cemetery and in the kitchen-gardens.

Milvus migrans. Black Kite.

A few pairs appeared to nest near the town, and in the first half of April a certain number were observed on passage. The autumn migration was much more noticeable, perhaps on account of my being in camp at the time. On September 4, 1910, a flight of about 120 individuals alighted on the hill-side behind my tents at about sundown and rested there for some time, eventually moving on about a quarter of a mile to a group of trees, where they perched for the night. During the remainder of the month they were seen almost daily, either in twos and threes or singly, but on two occasions I came across small flocks (one of six and one of twenty) resting in the fields. The latest date on which a Kite was seen was the 10th of November, when the weather was already cold.

Falco subbuteo. Hobby.

Very seldom observed. In 1910 I saw one on May 5 at Ilijé, one on August 22, and one on September 10. In the following year a specimen haunted my camp for some days in late July, and I recorded single individuals on August 28 and September 16.

Falco tinnunculus. Kestrel.

Common Kestrels are to be seen throughout the year, and there appears to be a migratory movement in April and September; but it was not always possible to distinguish between these birds and the Lesser Kestrels.

Falco naumanni. Lesser Kestrel.

The Lesser Kestrel usually appears about the middle of April, and enormous numbers are to be seen in the first week of May. Many remain to breed in the town and neighbourhood. The southward migration becomes noticeable after the beginning of September, and for about a fortnight one's attention is arrested by the thousands of birds which fill the air towards sundown. Stray individuals are, however, to be seen till well on in October.

Anser sp. Goose.

I was only able to record the following observations:—

"1910, March 20. Weather still and sunny. This forenoon saw two large strings of Geese flying southwards. I imagine they settled not far off. November 16. A brilliant day with 15 degrees of frost. Saw a string of at least 100 Geese about 1 P.M. Others passed later.

1911, February 8. Heard Geese passing at night. November 6. Sunny weather. Saw a gaggle of 40 Geese flying N.E. this afternnon. November 13. At midday about 40 Geese were manœuvring over the town, evidently making for the south."

Tadorna casarca. Ruddy Sheldrake.

Breeds very abundantly in the Kara Su marshes, and may frequently be seen flying over the town in pairs.

Anas boschas. Mallard.

Abundant in the marshes.

Querquedula querquedula. Garganey.

A specimen was brought to me on March 30, 1910.

Querquedula crecca. Teal.

A pair were brought to me on October 24, 1910.

Spatula clypeata. Shoveller.

A specimen was brought to me on November 2, 1910.

Dafila acuta. Pintail.

A specimen killed in the Kara Su marshes was brought to me on March 30, 1910.

Ardea cinerea. Common Heron.

Common in the marshes. I have heard them passing in large numbers by night early in September.

Egretta alba. Great White Heron.

I saw two at Ilijé on May 5, 1910.

Egretta garzetta. Little Egret.

Was seen by me only once, on May 5, 1910, at Ilijé, but is presumably common.

Nycticorax nycticorax. Night-Heron.

Common in the marshes from the beginning of May onwards.

Ciconia ciconia. White Stork.

The Stork is less abundant in the Erzerum district than in the lower and warmer plains of Passen and Erzinjan, but a few pairs arrive in the first week of April, and nest in the town and the villages adjacent to the Karu Su marshes.

On August 15, 1910, I saw a flight of about 200 proceeding in a S.E. direction, and smaller parties were occasionally seen later on. A solitary specimen was noted as late as September 25, 1910.

Grus grus. Common Crane.

The Crane arrives in the marshes in the first week in April, and remains in some numbers during the summer.

Otis tetrax. Little Bustard.

Not uncommon in the plain, and much sought after by gunners.

Gallinago gallinago. Common Snipe.

One observed on September 26, 1910.

Totanus totanus. Redshank.

Observed in numbers at Ilijé on May 5 and on subsequent occasions in the marshes.

Totanus hypoleucus. Common Sandpiper.

The Common Sandpiper arrives early in April, the first date of observation in 1910 and 1911 being the 9th of that month. Early in May it was widely distributed in the Kara Su valley and at Ilijé, but I did not ascertain whether it remained to breed. A few were observed during the latter half of August, when large flights of Waders passed during the night.

Limosa limosa. Black-tailed Godwit.

Two specimens were brought to me on April 14, 1910.

Ægialitis dubia. Little Ringed Plover.

Common in suitable localities in the Erzerum and Passen Plains. Earliest date of observation, April 27.

Vanellus vanellus. Lapwing.

The Lapwing arrives about the 18th of March, and by the end of the first week in April large flocks are to be seen. They spend the summer in the marshy fields adjacent to the Kara Su marshes and disappear towards the end of September.

Hæmatopus ostralegus. Oyster-catcher.

I saw two pairs on May 5, 1910, at Ilijé.

Larus ridibundus. Black-headed or Laughing Gull.

These are to be seen in the vicinity of the town as early as the first days of February, the 2nd of this month being my earliest record in 1911. Many are then in winter plumage, and they seem to live chiefly on garbage until the marshes become accessible. During the summer they abound in the Kara Su swamps, and also on the Araxes in the Passen Plain. I have no notes recording the date of their departure.

Sterna hirundo. Common Tern.

A common summer visitor in the marshes and in the Passen Plain.

Hydrochelidon nigra. Black Tern.

An abundant summer visitor in the Kara Su marshes.

Podiceps cristata. Great Crested Grebe.

I saw a family-party on the Kara Su on June 25, 1910.

Podiceps griseigena. Red-necked Grebe.

An immature bird was brought to me on August 19, 1910.

Columba palumbus. Wood-Pigeon.

One observed on April 9, 1911.

Columba livia. Rock-Dove.

Was observed early in March and became increasingly numerous until the end of April in the fields round the town, whither the gradual melting of the snow attracted flocks of Lapwings, Starlings, Rooks, Jackdaws, and Meadow-Pipits. Between this period and autumn I seem to have made no observations, but solitary birds and small parties are noted as having been seen between August and October.

Streptopelia turtur. Turtle-Dove.

Found sparingly in the few spots where trees can grow. They arrive at the end of April, and after the 3rd or 4th of September numerous small flights were observed proceeding S.W. through the Boghaz defile. Many of these spent the night in the trees at my camp. I have observed isolated individuals as late as October 7.

Pterocles arenarius. Sand-Grouse.

Inhabits the drier parts of the plain in large numbers, and is much sought after for food.

Caccabis chucar. Chukar Partridge.

Was observed occasionally, and in winter could be met with on the fortifications. In the coldest months they are sometimes so emaciated that they can be caught by hand.

Coturnix coturnix. Quail.

A few were observed during the month of May and from the first days of August till early in September.

II.—*Notes on Birds observed in the North Sea and North Atlantic Ocean during the Autumn and Winter of* 1914.

By Lieutenant J. N. Kennedy, R.G.A., M.B.O.U.

The observations given in the following paper were made over a wide area of the North Sea and North Atlantic Ocean, extending northward to the Faroes, eastward to the Norwegian coast, westward beyond St. Kilda, and southward as far as the Heligoland Bight.

It will be seen that the number of species met with was influenced not only by locality but by weather conditions, this point being well illustrated between the 5th and 9th of November when we were patrolling some forty miles from the island of St. Kilda, during the approach of a gale.

The noon position on each day is given, and I have added notes on the weather which may prove of interest in connection with the other observations.

The nomenclature adopted is that of the B. O. U. List of British Birds, 1915.

4 *August*—9 *August*. Between these dates no systematic notes were made. The only species of interest observed was the Great Skua (*Catharacta skua*), one of which followed the ship on several occasions during a spell of calm weather. We were at that time in the vicinity of the Orkneys.

10 *August.* Sunny; light breeze S.–S.W. 58° 5′ N., 1° 01′ E.

Herring-Gulls (*Larus argentatus*) and Lesser Black-backed Gulls (*Larus fuscus affinis*) were numerous in our wake all day. Three Gannets (*Sula bassana*), one of which was immature, followed the ship for two hours. A few Fulmars (*Fulmarus glacialis*) and Razorbills (*Alca torda*) were seen at a distance.

15 *August.* Sunny; light airs N.E.–N.W. 58° 20′ N., 2° 15′ E.

Numerous Razorbills with young were passed. The hoarse croaking calls of the parent birds and the musical whistling answers of the young ones were frequently heard as they dived in alarm at the approach of the ship. In no case have I seen a young Razorbill at sea attended by more than one of its parents. Four or five Fulmars followed us all day.

24 *August.* Sunny and calm. Cromarty Firth.

Hundreds of Herring-Gulls, and smaller numbers of Lesser Black-backed Gulls and Black-headed Gulls (*Larus ridibundus*) were seen in the Firth. There were also a few full-grown young Herring-Gulls of the year, which were conspicuous by their curious crouching attitude in the water and by their clumsy, tentative flights.

26 *August.* Foggy, with intervals of sunshine; light airs S.E.–S.W. 58° 1′ N., 2° 47′ E.

The surface of the sea for many miles teemed with Razorbills and their young, and, even at night, we frequently heard their hoarse cries followed by the sleepy notes of the baby birds. A Wheatear (*Œnanthe œnanthe*), somewhat exhausted, appeared on board in the afternoon, 150 miles from land.

1 *September.* Calm; some rain; light airs S.W.–S. 58° 15′ N., 1° 44′ W.

Great numbers of Fulmars were seen from time to time in companies of five to twenty, while many followed in our wake.

11 *September*. Colder, overcast ; fresh breeze S.S.W.–W. 57° 55′ N., 2° 11′ W.

A few Fulmars and a couple of Gannets following the ship were the only birds seen.

18 *September*. Stormy, wind N.N.W.–N.W. 56° 26′ N., 0° 51′ E.

Numbers of Fulmars, Kittiwakes (*Rissa tridactyla*), and a few Herring-Gulls followed us all day.

20 *September*. Stormy, wind N.E.–N.N.W. 56° 26′ N., 0° 30′ E.

About a score of Fulmars and a dozen Kittiwakes followed us all day. One Gannet joined them for a short time, and later a Richardson's Skua (*Stercorarius parasiticus*), which approached the ship closely more than once, in pursuit of the Kittiwakes.

21 *September*. Cold ; heavy seas ; fresh breeze N.N.E.–W. 56° 10′ N., 0° 9′ E.

There was the usual following of Fulmars and Kittiwakes, and at one time half a dozen Gannets. At intervals a Richardson's Skua, possibly the bird of the previous day, appeared astern and chased the gulls, which always shook off their pursuer by seeking sanctuary in the vicinity of the quarter-deck.

23 *September*—25 *September*. Cromarty Firth.

Thousands of Herring-Gulls, and large numbers of Lesser Black-backed and Black-headed Gulls were in the Firth. A Cormorant (*Phalacrocorax carbo*) was seen flying seawards with its beak held wide open.

26 *September*. Fresh breeze W.–N.W. ; showers. 58° 11′ N., 2° 05′ W.

We left harbour in the morning. Before we were out of sight of land we were being followed by a few Kittiwakes and Fulmars, the latter increasing in numbers as the land was left farther astern.

27, 28, 29 *September.* Storm from N.W. 58° 31′ N., 1° 14′ E.; 58° 50′ N., 1° 26′ E.; 59° 56′ N., 4° 40′ E.

On the first and second days of this gale we were followed by about a dozen Fulmars and the same number of Kittiwakes. A few Storm Petrels (*Thalassidroma pelagica*) were observed on both days. The only other bird seen was a Gannet in the distance on the evening of the 28th.

On the third day all the birds had disappeared, nor were any seen until the evening, when one or two Fulmars began to follow.

30 *September.* Calmer, cold, showery; wind N.W.–W.S.W. Position as for 29th.

About a score of Fulmars followed us all day, and during the forenoon there were also a few Kittiwakes.

3 *October.* Warmer; fresh breeze W. by N.–N.W. Near Kinnaird Head.

Before we were out of sight of land I distinguished with my binoculars two Storm Petrels flying far astern. Within ten to fifteen miles of the land Gannets were numerous, singly and in small companies of three or four; and within the same area there were also small numbers of Herring-Gulls, Common Gulls (*Larus canus*), and Kittiwakes. Two Richardson's Skuas approached the ship while close to the land. Some companies of small divers were seen on the wing in the distance.

4 *October.* Showery; fresh breeze N.W. by W.–N. 58° 33′ N., 4° 37′ E.

Over one hundred Fulmars were in our wake all day, and also a few Kittiwakes. Some Gannets were seen from time to time in the distance.

5 *October.* Much rain; light breeze N.W.–S.–N.N.W.–N.E. by N. 58° 52′ N., 4° 03′ E.

On this day we had the same large following of Fulmars and a few Kittiwakes. One Lesser Black-backed Gull (subsp. ?), a few Herring-Gulls, and some Gannets were also seen. A small number of Guillemots (*Uria troille*) and Razorbills was noticed. A Wheatear (*Œ. œnanthe*) flew on board in the afternoon.

6 *October*. Warm sunshine; fresh breeze N.E.–N. 58° 53′ N., 4° 10′ E.

We sighted land (Norway) from time to time during the day. Except for a short time in the forenoon, when one or two Fulmars and several Kittiwakes were following, we had no birds in our wake. One young Guillemot was passed in the evening.

7 *October*. Drizzling rain and fog; light wind W. by S.–N., 59° 1′ N., 4° 45′ E. (still within sight of Norway).

No birds whatever were seen except a couple of Kittiwakes.

8 *October*. Calm; fog at intervals. 59° 25′ N., 4° 24′ E. (within sight of Norwegian coast nearly all day).

Three or four Fulmars followed us for an hour in the forenoon, but disappeared later. Numerous companies (up to ten birds) of Guillemots and Razorbills were passed.

9 *October*. Very calm and clear; warm sunshine. 59° 12′ N., 4° 33′ E. (within 12 to 15 miles of Norwegian coast all day).

Two Fulmars were seen astern just after dawn, but they had disappeared after 8 A.M. No other birds followed us except two Kittiwakes at intervals and a Herring-Gull. Guillemots, Razorbills, and Puffins (*Fratercula arctica*) were very numerous in companies of from four to ten. They had not been previously seen in such numbers. This may have been due to the difficulty of observation in broken water or perhaps to the greater distance from land.

While watching a Puffin through my glasses, I suddenly saw the periscope of a German submarine appear above the water close to the bird. We altered course just in time to evade, by a few feet, two torpedoes which were fired at us! We tried to ram the submarine, but unfortunately she dived too quickly.

10 *October.* Calm and warm until the afternoon, when a fresh breeze arose, S.E.–S.S.W. 59° 38′ N., 3° 11′ E.

We were further from the land to-day, and few birds were observed. One or two Fulmars were with us from time to time. I observed one of these birds zigzagging methodically across our broad wake and alighting on the water whenever it espied a morsel of food. In calm weather the Fulmars never seem to beat the water with their feet. One or two Gannets were seen in the distance. Guillemots, Razorbills, and Puffins were still numerous, but there were not quite so many as on the preceding day. A few Kittiwakes were in our wake occasionally.

In the afternoon a male Chaffinch (*Fringilla cœlebs*) appeared, and began to search, as if for food, on the quarter-deck. I brought up some crumbs, which were evidently found to its satisfaction, for it held up its head and loudly uttered call-notes several times. Meeting with no response, it flew off to the forward part of the ship, and in about five minutes returned with its mate, when they began to feed together. We were just out of sight of land at this time.

15 *October.*

There was no change in the number of gulls at Cromarty. Two Greater Black-backed Gulls (*Larus marinus*) were also seen.

16 *October.* Cloudy, rather cold, calm; light wind S.E.–S.W. 59° 53′ N., 0° 33′ E.

No birds were seen during the forenoon except a few Kittiwakes. In the afternoon there were about a dozen Fulmars and twenty Kittiwakes, one of the latter being an immature bird which continually uttered a low piping note.

One Hedge-Sparrow (*Accentor modularis*), one Goldfinch (subsp. ?), and two Blackbirds (*Turdus merula*) were flying round the ship at noon.

17 *October.* Cold, calm; light wind S.W.–S.E. 61° 51′ N., 0° 32′ E.

About twenty Fulmars and a few Kittiwakes followed all day. A few Guillemots, Razorbills, and Puffins were seen from time to time.

Numbers of small birds resting on board (Robins, Blackbirds, Chaffinches) were reported by the officers, but identification is unreliable.

18 *October*. Cold, foggy at intervals, light wind W. by S.–S.
61° 33′ N., 2° 04′ W.

There were more Fulmars (about forty) and a few Kittiwakes in our wake all day.

About noon a Pomatorhine Skua (*Stercorarius pomarinus*) flew across our track.

Small numbers of Guillemots and Razorbills were seen occasionally, and several of both species were seen to fly up from astern, and, having overtaken the ship, to alight in the water near by.

19 *October*. Cold, calm, bright; light wind N. by W.–S.W.
61° 52′ N., 2° 28′ W.

A few Fulmars and Kittiwakes were following in the morning. About noon (the men's dinner hour) the number of Fulmars increased until we had seventy or eighty astern. Towards evening most of them had disappeared. Two immature Herring-Gulls were seen about noon. At this time two Richardson's Skuas of the dark form appeared and frequently gave chase to the Gulls, but I did not observe them molesting the Fulmars. The Skuas occasionally alighted upon the water to feast upon some dainty morsel, but they never joined the parties of Fulmars which were left behind occasionally, swimming round some floating fragments of food. A few Guillemots, some of which were on the wing, were also seen.

Several Redwings (*Turdus iliacus*) were seen about noon and later, flying round and round the ship, unwilling, apparently, to alight; and a small wader, which did not approach closely enough for identification, circled round us at a distance for some time.

20 *October*. Cold ; fresh breeze S.S.W.–S. 62° 0′ N., 1° 34′ W.

At daybreak no birds whatever were in sight. A few Fulmars and Kittiwakes appeared later, and shortly after midday many more Fulmars, until we had sixty in our wake. Towards evening most of them had disappeared again. One or two Guillemots on the wing, and one Richardson's Skua in the distance, were also observed.

About 4 P.M. a Great Skua was following the ship. He chased the Gulls continually, doubling and twisting with much address in their pursuit, but he did not molest the Fulmars, although the latter exceeded the Gulls in number. From time to time he would alight upon the water to seize a piece of refuse, and, rising again, would overtake the ship with a few beats of his powerful wings.

21 *October*. Bright ; wind increased in the afternoon S. by E.–S.W.–S.E. by S. 61° 50′ N., 2° 02′ W.

We had the usual following of Fulmars and Kittiwakes, which increased about midday and decreased again before darkness. Two Manx Shearwaters (*Puffinus puffinus*) followed us for some time in the afternoon. The peculiar rolling flight of these birds made them easily distinguishable amongst the others. Frequently they made excursions of five or six hundred yards outwards from our wake, but, although I watched them for nearly an hour, I did not observe them seize one morsel of food. One Guillemot was seen.

22 *October*. Gale from N.W. (near Shetlands).

Shortly after daylight we were in the lee of the land, which was some seven miles distant. Three or four Kittiwakes were the only followers, and later a single immature Gannet was noticed.

As we entered harbour I saw some sixty Shag (*Phalacrocorax graculus*) taking shelter from the gale in a small field.

24 *October*. Sunny, calm; light breeze S.E. by E.–N.E. by N. 60° 31′ N., 2° 30′ W.

Large numbers of Shag were still frequenting the grassy slopes near the sea. Eight or nine Eiders (*Somateria mollissima*), and many Herring-Gulls and Common Gulls, were also seen near the land.

At noon, when we were thirty or forty miles from land, only three Kittiwakes were following the ship; but two hours later the first Fulmars appeared, and by the evening twenty were flying astern.

25 *October*. Sunny; choppy sea; wind S. by E.–S.E. 62° 39′ N., 8° 17′ W.

About fifty or sixty Fulmars accompanied us to-day, but no Gulls were seen with the exception of three or four Kittiwakes in the afternoon. One Manx Shearwater was observed in the distance.

26 *October*. Cloudy, cold; long swell; wind S.E. by S.–S.W. 62° 11′ N., 8° 25′ W.

Some Fulmars appeared shortly after daylight, and more during the forenoon, until at midday nearly one hundred were following the ship. On this day a remarkably large number of Manx Shearwaters was encountered. At one time there were over twenty flying amongst the Fulmars astern, whilst forty or fifty others skimmed the waves round the ship. Apart from their rolling flight, this species can be readily distinguished at a distance by the peculiar attitude while in the air, the wings being depressed somewhat below the level of the body. I did not see the Shearwaters feeding on any occasion; in this they differed from the Fulmars, which were constantly alighting and being left far astern.

Two Glaucous Gulls (*Larus glaucus*) were in sight for a few minutes just before noon, flying slowly and close to the waves.

A Great Skua accompanied us for an hour in the afternoon, feeding on the refuse thrown overboard. He occasionally chased a Kittiwake which got in his way, but the Gulls were not feeding at the time and were not further molested.

A Black Guillemot (*Uria grylle*) attracted my attention about 1.30 P.M. It accompanied us for some time, flying up from astern every few minutes, swiftly passing us and circling round the bows, only to alight a short distance behind us. I saw this manœuvre repeated at least a dozen times.

27 *October.* Cloudy ; long swell ; wind S. 60° 34′ N., 3° 02′ W.

This morning we were steaming at 17 knots, and it was evident that the Fulmars had to exert themselves more than usual in order to keep pace with us. From previous observations I had formed the opinion that the Fulmars never followed the ship after land was sighted ; but to-day, when we were two miles from the Shetlands, about 3 P.M., a dozen of these birds were still in our wake. They gradually dropped off until all of them had disappeared within about one mile of the land.

Near the land there were great numbers of Shag, Herring-Gulls, and Lesser Black-backed Gulls, and a few Guillemots and Razorbills.

29 *October.* Slight swell, sunny and warm ; light breeze N.N.W.–S.E. 62° 13′ N., 0° 10′ E.

In the morning a few Fulmars were following, and at noon I saw numbers flying close to the waves ahead of and on both sides of the ship, but not so many as had been met with north of the Faroes. Two Manx Shearwaters were also seen occasionally. One of these birds was seen to alight and devour a fragment of food, and while it remained on the water—for quite one minute—the wings were held uplifted as if in readiness for flight.

30 *October.* Slight swell ; wind S.S.W.–S. 61° 2′ N., 1° 28′ W.

On this day we patrolled within twenty to twenty-five miles of the Shetlands, which were visible to the southward.

Fulmars were scarce, only three or four being met with. Hundreds of Herring-Gulls, a few Kittiwakes, and one Lesser Black-backed Gull were also seen.

4 *November.* Choppy sea; a little rain occasionally; wind S.E.–E. 60° 14′ N., 3° 3′ W.

From ten to twelve Fulmars, three Kittiwakes, and two Herring-Gulls were the only birds seen.

5 *November.* Calmer; showers; wind S.–E. by S. 58° 26′ N., 8° 48′ W.

A dozen Fulmars and a few Kittiwakes followed the ship all day.

On 6 November we were in the same place. The Fulmars increased in numbers to twenty-five, and one Richardson's Skua was also seen near St. Kilda.

On 7 November the wind freshened here from S.–S.W. Fulmars and Kittiwakes became more numerous towards noon. A few Herring-Gulls, one Lesser Black-backed Gull, and one Richardson's Skua (a very dark example) were also seen. Two Manx Shearwaters passed just after dawn, and they were again observed some hours later.

On 8 November the wind increased from W. by N.–S.W., and the sea was choppy. Fulmars increased still more in numbers until we had over forty in our wake, while many others were seen at a distance. One Richardson's Skua, two Herring-Gulls, and one Lesser Black-backed Gull were also observed.

On 9 November the wind had increased to a gale S.W–W.N.W., and there were heavy seas. On this day we had from sixty to seventy Fulmars with us, and a few Kittiwakes were also noticed.

The flight of the Fulmar is most graceful in a strong wind. With wings motionless and rigidly outstretched they sail into the wind close to the surface of the water; then, when they have lost their momentum, they suddenly beat the slope of an oncoming wave, and, leaving a little track of flying spray, they shoot forward and rise once more into the air.

I have several times, during a gale, observed a Herring-Gull to beat the water with its feet in a manner similar to that of the Fulmar, in order to aid it to rise above the waves.

On 19 November an immature Glaucous Gull was seen off Kinnaird Head. It followed us for a short time, chasing the Kittiwakes occasionally.

24 *November.* Calm, rather cold. Heligoland Bight.

Birds were almost as conspicuous by their absence in the Bight as the enemy's ships of which we were in search.

An occasional Kittiwake, two Gannets in the distance, and one or two Guillemots and Razorbills were the only birds observed.

III.—*A little-known Bird Colony in the Gulf of Mexico.*

By Lieutenant J. N. Kennedy, R.G.A., M.B.O.U.

The Alacran Reefs lie in latitude 22° 30′ N. and longitude 89° 30′ W. in the mouth of the Gulf of Mexico, some ninety miles north of the coast of Yucatan. The reefs form a large, roughly elliptical ring, inside which are numerous heads of coral with intermediate veins of deep water. Many parts of the reefs are awash, whilst on others grass and samphire grow luxuriantly.

In May 1912 I paid a short visit to the reefs, in the course of which I had an opportunity of landing on two small islands at the southern extremity, called respectively Pajaros Island and Chica Island, where the bird-colony which forms the subject of the present paper is situated.

On May 19 I had noticed small parties of Sooty Terns returning to the islands from the calm waters inside the reef, where they had been fishing. During the night, which was sultry, there seemed to be little sleep in the colony, for the faint high-pitched murmur of many bird-voices came to us continuously over the water.

On the afternoon of the 20th of May we arranged an expedition to the islands which lay some considerable distance from us, appearing as a low glittering streak of white sand on the horizon. The coral shelf extended for nearly a mile from the reef at this point, and the shallow waters teemed with gaudily coloured fish, which doubtless formed a plentiful food-supply for the Terns. As we approached Pajaros Island, we perceived it to be a low sand-bank covered to some extent with creeping vegetation. Thousands of Terns arose from it as our keel grated on the beach, and the air was filled with a chorus of defiant screams of alarm. Wading ashore we proceeded to explore the island.

Above the high-water line the ground was literally carpeted with the beautifully marked eggs of the Sooty Tern (*Sterna fuliginosa*). Many of the birds, instead of taking wing at our approach, sat on their eggs in an attitude of defiance, and, with wings outspread and beaks open, screeched angrily at us. So fearless were they that some of them allowed us to take them up in our hands.

Among the hundreds of sitting birds I noticed a small colony of some fifty Terns which I saw to be of another species, their backs being white in contrast to those of the Sooty Terns, which are black. I made my way towards them, hoping to secure a specimen. This, however, was not so easy as I had anticipated, the birds being quite wild. At last I brought one down, which proved to be an example of Cabot's Tern (*Sterna sandvicensis acuflavida*). The Cabot's Terns were all nesting in company, and their eggs were placed close together on a bare patch of sand in the middle of the great Sooty Tern colony.

We made our way to the other end of the island, endeavouring to damage as few eggs as possible as we walked along—it was impossible not to break some, so thickly were they strewn on the ground. Several Blue-faced Boobies (*Sula cyanops*) flew off at our approach, and amongst the herbage we found two great downy youngsters which snapped viciously at the butt of my gun with their heavy beaks.

Near this place we came on four nests of the Laughing

Gull (*Larus atricilla*). The Gulls were the only birds on the island which had made any attempt at the construction of a nest, their eggs being deposited in rough low structures of dried vegetation and seaweed. In three cases the eggs were on the point of hatching, whilst in the fourth they were quite fresh.

The eggs of the Terns were for the most part well incubated, especially those of the Cabot's Terns, but I saw no young birds.

Several Frigate Birds (*Fregata aquila*), which had taken wing some time before, now circled high overhead. I do not think, however, they were nesting on the island.

Before exploring the next island I set out to stalk a flock of some ten small waders which I had noticed on a coral reef near by. They were very shy, but I was lucky enough to secure two which proved to be examples of Baird's Sandpiper (*Tringa fuscicollis*).

Chica Island is slightly smaller than Pajaros Island, near which it lies. On it we found a nesting colony of some fifty pairs of Blue-faced Boobies. The parent birds, particularly those with young, were absolutely fearless, and remained upon their nests snapping at us with their formidable beaks. We drove some of them off their nests, when they rose heavily into the air and circled round our heads. Many of the nests contained young birds a few days old, others two eggs, and several one egg only. We also came on some young birds which appeared to be about a fortnight old.

Specimens of *Sterna fuliginosa*, of *Sterna sandvicensis acuflavida*, and of *Tringa fuscicollis* from this locality have been presented to the British Museum by the writer.

IV.—*With the British Association in Australia.*

By A. H. Evans, M.A., M.B.O.U.

As the Council of the British Association were kind enough to include me in their list of members specially selected to attend the meeting of 1914 in Australia, it is almost a duty to give some account of my ornithological experiences in that wonderful Continent; and it may possibly be of interest to my fellow-workers of the B. O. U. to learn what birds are usually to be met with by a traveller in the early southern spring through the more temperate districts. At that season migration has hardly begun, so that the list must necessarily consist mainly of residents ; while it must also be noted that a large number of the characteristic Australian birds, such as the "Native Companion," the Mound-builder, and the Emu, are inhabitants of the interior or of wild and difficult country, which can only be reached by special expeditions limited neither by time nor expense. It should, moreover, be remembered that many birds are necessarily overlooked in the foliage of the tall gum-trees by those who are pressed for time. Still it will be seen that I was able to observe no fewer than 128 species of the 395 assigned by Dr. Leach to Victoria in his admirable little book on Australian birds; and Victoria is there stated to differ little from the whole Continent, if we exclude the tropical forms in Queensland and omit subspecies.

Leaving Southampton with my wife on June 24, 1914, I travelled by way of the Canadian Pacific Railway to Vancouver City, and thence to New Zealand, touching at Honolulu and Suva, where introduced birds alone can be seen about the towns. This was a great disappointment to one who had written on the Hawaiian avifauna, but was not unexpected; foreign Doves and Mynas were of course plentiful, but it was not until I reached New Zealand that I came across my first example of a native species. Fog delayed our boat for a whole day in Auckland Harbour, and so we were lucky enough to be able to take train through stretches of flowering gorse (introduced) and cabbage-palm swamps to the vicinity of Frankton, where we wandered to the foot of the neighbouring "ranges" and found a pair of the local Fantail (*Rhipidura flabellifera*) preparing to breed, besides seeing other birds in the distance.

From Auckland we proceeded direct to Sydney, arriving in its magnificent harbour on Sunday morning, August 2, six days before the Association held its first meeting at Adelaide. The praises of Australian hospitality have often been sung, but I must here add my voice to the chorus in no unstinted measure. No words of mine can possibly express the gratitude which I felt—and which every member of our party must have felt—for the manner in which we were treated; while the thoughtful preparations for our comfort, the admirable and inexpensive arrangements for our expeditions, and the universal kindness of our entertainers can never fade from our memory. A deputation headed by Professor Edgeworth David met us at the landing-stage, and the Professor himself conducted several of us in the afternoon to the Botanical Gardens, where we were welcomed by the Curator, Mr. J. H. Maiden, the greatest of authorities on the Eucalyptus and Myrtle families. A large party cannot well study birds; so we postponed that pleasure for the time, and devoted our attention to the native flora, which is excellently represented in the Gardens.

The next morning (August 3) my wife and I left for Camden Park, formerly the residence of Mr. Macarthur, the pioneer of the merino-wool industry in the country. Here we were introduced to the Australian avifauna under the most favourable auspices. Our friend and hostess, Miss Macarthur Onslow, proved to be no mean expert in ornithology; while her brothers and her cousin, Mr. Foote Onslow, aided us in the kindest way in our investigations. The Park, long noted in New South Wales, is of great extent and diversity: it comprises creeks and lagoons, pastures and peach-orchards, groves of "box" and other Eucalypts, with large wooded gardens round the actual residence, which contain many fine specimens of uncommon trees and shrubs. Birds were thus naturally plentiful, even though the southern summer had not yet begun. The main feature in an Australian landscape is, of course, the gum-tree (*Eucalyptus* of many species), but in spring the glories of the various flowering wattles (*Acacia*) are even more conspicuous, and the Wattle is as much an emblem of the flora as is the Emu of the avifauna.

But to return to our birds. The place of the Robin of our gardens was here filled by the brilliant "Blue Wren" (*Malurus cyanochlamys*), of which several males were in possession of the lawn, each accompanied by a small bevy of brown females. These lovely little blue-and-black songsters were common at Camden, as elsewhere, and bred in the bushes bordering the grass; but none of the nests were yet occupied. The Brown Flycatcher (*Micrœca fascinans*) and the Willie Wagtail (*Sisura inquieta*) were perhaps the most prominent of the other small birds which we were beginning to recognise, while a quantity of old nests of a Finch (? *Stagonopleura guttata*) almost filled a most thorny bush at one extremity of the actual garden. It was a great pleasure to hear for the first time the sweet voices of the Mistletoe- and Diamond-Birds, though both were at the tops of high trees and difficult to see; they were accompanied by White-eyes (*Zosterops cærulescens*) and the first members of the great family of Honey-eaters (Meliphagidæ) that we had seen, which were no doubt chiefly "Greenies" (*Ptilotis penicillata*). Later in the day the notes of that characteristic Australian species, the Kookaburra or "Laughing Jackass" (*Dacelo gigas*), were heard in the distance, varying from low gurglings to loud guffaws, but always unmistakable and most striking to a new-comer. This Kingfisher is most noisy in the evening, but almost equally so in the early morning; parties are constantly seen sitting on the same branch or on a telegraph wire, but when they cry they commonly separate and answer one another from a distance.

Next day, soon after sunrise, we were awakened by the loud melodious notes of the "Black Magpie" (*Strepera graculina*) and the Black-backed "Magpie" (*Gymnorhina tibicen*), which quite overpowered those of the other songsters. The Black Magpie was common and most conspicuous as it flew from tree to tree in fearless fashion; unlike the

Gymnorhina or Crow-Shrike, it is only seen at Camden on migration, and appears to withdraw to the nearer hill-ranges to breed. It is a fine bird, and we seem to have been lucky to find it in numbers and hear it to such advantage; the other species we met with subsequently, and were never weary of their musical cries. Butcher-Birds were rare in the Park, but we were taken to listen to the song of one which always performed at the same place. It was probably *Cracticus destructor*, but we could not identify it and had to be content with admiring the full liquid notes. We ought to have heard "Thickheads," which, however, failed us. We had here our first glimpse of a Parrot—the Rosella (*Platycercus eximius*),—but not sufficiently close to distinguish the fine colours. In addition, we noted the Native Thrush (*Colluricincla harmonica*), whose splendid song gains it the name of "Harmonious"; while it may be remarked that in various parts of Australia, about the towns and their environs, we not uncommonly met with the introduced Sparrow, Starling, Blackbird, Thrush, Greenfinch, as well as the Indian Turtle-Dove and Myna.

The same morning Mr. Foote Onslow was good enough to escort us over the nearer parts of the property. Circling over the distant paddocks was a fine large Buzzard or Harrier—perhaps *Circus assimilis*—which we never saw at close quarters; a Heron (*Notophoyx novæ-hollandiæ*) winged its way across the neighbouring creek; and some half-a-dozen Peewees or Magpie-Larks (*Grallina picata*) kept rising from the grass. These birds are near relatives of the Shrikes, and build in the trees a very peculiar mud nest, whence they are also called "Mud-Larks"; but with their heavy flapping flight and shrill cries they take the place in Australia of the European Lapwing. A visit to a small lagoon some mile distant introduced us to several more species. By a stroke of uncommonly good luck, a fine Sea-Eagle (*Haliaëtus leucogaster*) happened to be floating in the air over the water, and was hardly disposed to move off on our appearance; Moorhens (*Gallinula tenebrosa*) and Black Ducks (*Anas superciliosa*) were disporting themselves in their element; a couple of White-breasted Cormorants (*Phalacrocorax gouldi*) were fishing near the shore; and two Hoary-headed Grebes (*Podiceps poliocephalus*) kept diving and re-appearing as we approached. Our return to the house was less eventful, but we came across one more species that was new to us—the Brown Tree-Creeper (*Climacteris picumna*), which was clinging to the bark of one of a magnificent grove of "box" trees; we also renewed our acquaintance of the previous afternoon with the Scrub-Tit (*Smicrornis brevirostris*).

No remarkable birds crossed our path the next day, which was chiefly devoted to botany at the Cataracts, or huge up-country reservoirs, which supply Sydney with water: the heath-like *Epacris* (red or white), the pink Boronia, the curious Hakeas and Grevilleas were alone enough to occupy our attention; but it was hardly the wealth of early-flowering plants that made us fail to observe the avifauna, for the noise of our motor on the hard rutty roads was quite sufficient to scare any number of birds. An English motorist would think these tracks impossible.

The following afternoon we drove to call on a neighbour amid fields bordered by masses of the brilliant "Black Acacia" of the district, which was in full flower. We saw small flocks of Rosellas, heard a Boobook Owl as we returned in the dusk, and were fortunate enough not only to observe the White-throated Tree-Creeper (*Climacteris scandens*) but to hear its shrill cry, while we were admiring the scenery at a small ravine.

So ended a most delightful and instructive visit; for we were obliged to bid farewell to our kind entertainers early the next morning and hurry off to catch the train to Sydney. There arrangements had been made to transport us to Adelaide in time for the first meeting on August 8. The second meeting was at Melbourne, the third at Sydney, the fourth at Brisbane. Social gatherings were, as a rule, cancelled, owing to the declaration of war with Germany; but the scientific arrangements held good, so far as Australia was concerned. Everywhere men were enlisting and forming camps: the patriotism of the Southern Continent is a lesson we may well take to heart, and for which we must never fail to be unceasingly grateful to our kinsmen across the seas.

The arrangements for our comfort at Adelaide were as complete as elsewhere, and we were personally indebted to the unvarying kindness of our host, Mr. F. A. Simpson, and his wife, who had even corresponded with us in England with a view to furthering our scientific explorations. Business meetings occupied a good deal of time during the four days of our stay, but Mr. Simpson had made all preparations for a day on the Upper Sturt River, and had invited Dr. Morgan, the well-known oologist, to accompany us. Captain White was absent on an ornithological expedition, so we had not the pleasure of making his acquaintance. Early on August 9 we took train for the station nearest to the river, and were almost at once descending the scrub-covered slopes that led to the water. Here we renewed our acquaintance with the commoner birds seen at Camden, but did not meet with any new Meliphagine species, which our experience of the next two days shewed to be common at that time of year on the flats above. Diamond-Birds were flitting about the tree-tops, and we soon fell in with small companies of Grey-crowned Babblers (*Pomatorhinus frivolus*), the "Twelve Apostles" of the country-folk—so called from the usual size of the flocks. They were common and tame, though somewhat local, and were presumably preparing to breed, as they were busy about the low bushes, and some of the many nests we found seemed to be made of fresh materials. This was, however, difficult to prove—firstly, because the sticks and leaves which enter largely into their composition are dry and not green; secondly, because we found no eggs. Each pair builds several large domed nests, but only uses one for its nursery. On reaching the river we had our lunch among the tea-tree scrub that fringes it, and were able to admire at leisure the splendid growth of the huge red gums, which flourish best at damp low levels. Many other trees and shrubs were quite new to us, among them the curious "grass-tree" (*Xanthorrhea*), which was pretty common on the barer slopes. Birds were not particularly abundant, but we had splendid views of three fine "Robins," as they are termed in Australia—the Scarlet-breasted (*Petrœca leggei*), the Flame-breasted (*P. phœnicea*), and the Black-and-white or Hooded (*P. bicolor*). They were seen sitting singly on low branches, after the fashion of the English Robin, and permitted a fairly close approach, but were very quiet and hardly uttered a sound. We also observed the "Yellow Robin" (*Eopsaltria australis*) in similar situations, but it also was mute, and evidently the "Robins" as a whole did not believe that spring had fully arrived. The track along the waterside was very rough and strewn with boulders, while little caves, of no great depth, occurred here and there in the low rocks on the right hand. In one of these we discovered a number of old nests of the Fairy Martin (*Petrochelidon ariel*), also called "Bottle-Swallow" from its retort-shaped mud nests, which are built in colonies under shelter. The Martins themselves had arrived, but had not yet begun breeding; so we did not see them till later. As we struggled through the rough ground above the ravine which we finally ascended, we flushed a couple of Little Quails (*Turnix velox*) from the low vegetation, largely composed of a *Grevillea* and a heath-like *Epacris* in full flower, while a solitary Bush-Lark (*Mirafra horsfieldi*) rose at still closer quarters. We then made for the road to Blackwood, and reached that station without further adventures, though we added to the list of birds identified the South Australian form of the Rosella Parrot.

The next day we accompanied a large party which visited the Tanunda Company's brandy manufactory, and had little opportunity for ornithological work, though we heard for the first time the fine song of the Rufous-breasted Whistler or "Thickhead." Here I was lucky enough to meet that well-known bird-lover, Mr. Edwin Ashby, who gave me a most cordial invitation to visit him at his residence, Wittunga, near Blackwood, and, as will be seen, was the means of my making the acquaintance of several rare species which I should otherwise have missed.

I went alone to Blackwood by an early train on August 11, and was received with the utmost hospitality by Mr. Ashby and his family, who live in a district still partly covered by scrub, though unfortunately falling into the builders' hands. The garden at Wittunga is large, filled with fruit trees and flowering plants, and fringed by a belt of virgin soil still carrying a natural growth of Eucalypts, which are a great resort of the Meliphagidæ. On and round the house Mr. Ashby and his son pointed out the breeding-sites of several species of birds already known to me, and shewed me the actual nests of more than one pair of the White-bearded Honey-eater (*Meliornis novæ-hollandiæ*) in small trees or bushes. This bird must lay its eggs very early in the year, for all were hatched and the young were actually fledged, though the Narrow-billed Bronze Cuckoo had only just made its appearance and was not heard to full advantage. We next proceeded to examine with the aid of field-glasses the birds which were flying to and fro or flitting about the tops of the highest Eucalypts; this was very necessary, for the numbers and the species appear to vary from day to day at this time of year. Naturally, if alone, I should have been somewhat uncertain of my identifications; but here the aid of Mr. Ashby and Mr. W. B. Alexander of the Perth Museum, who was staying in the house, was of the greatest assistance. The White-plumed Honey-eater or Greenie was familiar, but I had not yet met with the White-naped Honey-eater (*Melithreptus atricapillus*), which was not uncommon, the Black-chinned Honey-eater (*M. gularis*), the Spine-billed Honey-eater (*Acanthorhynchus tenuirostris*), or the Tawny-crowned Honey-eater (*Glycyphila melanops*). In a low fruit-tree a Brush Wattle-bird (*Anellobia chrysoptera*) was sitting on two eggs; the Striated Tit-Warbler (*Acanthiza lineata*) was seen with *Zosterops cærulescens* and other common species near the stables; and I feel sure that it was here that I saw the

Yellow-rumped Thornbill (*Acanthiza chrysorrhoa*) and its unoccupied nest. Finally, we examined some tall old scrub near the station in search of the rare Swift Parrot (*Euphema discolor*), the presence of which had been reported to Mr. Ashby. It occurs comparatively seldom in the neighbourhood, and we considered ourselves most lucky to be able to observe two examples at close quarters, feeding in company with Musk Lorikeets (*Glossopsittacus concinnus*) on the early-flowering Eucalypts. Rosellas also were rather plentiful: eleven out of every twelve of the Parrots we saw in Australia were Rosellas.

A still further stroke of luck awaited me. Mr. Ashby's son had come across the glorious Regent Honey-eater (*Meliphaga phrygia*) in some primeval scrub about a mile from the house, and his father was very anxious to find the nest and eggs, which even he had never seen. We therefore made for the spot across newly-ploughed land, where a couple of White-fronted Chats (*Ephthianura albifrons*) were feeding among the clods, and before long heard the fine ringing cry proceeding from a thicket of sapling gums. Before long we located a pair of birds, and after a short search discovered the nest. It was about half completed and hardly lined, the material used consisting, as in so many other cases, of dry leaves. Mr. Ashby subsequently obtained the eggs for his collection; while another pair bred near the stables. Probably this species may not nest at Blackwood again for many years. As we returned through the taller scrub, the musical notes of the Yellow-breasted Shrike-Tit (*Falcunculus frontatus*) fell upon our ears, and we had an exciting and successful chase after one of the prettiest of the rarer birds of Australia, which finally made up its mind to exhibit in full sunlight its brilliant yellow, black, white, and green colours. Our host hoped to have introduced us to the Friar-Bird, and we did just catch glimpses of the Red Wattle-Bird and White-backed Magpie (*Gymnorhina leuconota*), whose fine song is one of the characteristic sounds of the countryside. I was very unwilling to leave my kind entertainer, and had little leisure to examine the wallabies and other animals in his outside pens; but my time was limited, and I was forced to hurry off to catch the last convenient train to Adelaide. The next day (August 12) was fixed for our departure for Melbourne, the travelling, as usual, being chiefly by night. We had not even time to visit the Adelaide Botanical Gardens, but managed to reach the nearest part of the river, where many Black Swans were sitting on their nests on the small islets that appeared above the waters, and gaudy Purple Gallinules (*Porphyrio melanonotus*) were flushed here and from the sedge-coverts on the banks. There were other common water-birds in some numbers, and we saw for the first time in plenty the Welcome Swallow (*Chelidon neoxena*).

At Melbourne work was again the order of the day. My wife and I were received with the utmost hospitality by Mr. and Mrs. Cain of South Yarra, their daughter, and two sons, an Oxford and a Cambridge graduate respectively. Dr. Leach, Editor of the 'Emu,' Mr. Dudley Le Souëf of the Zoological Gardens, and last, but not least, our old ally and Colonial Member, Mr. A. J. Campbell, were also busy on our behalf; while I look with pride upon the fact that I was elected an Honorary Member of the local Field Club, at a meeting which I and my friend, Mr. George Herdman, were specially invited to attend. As I returned to Melbourne later, I must here content myself with a brief reference to an afternoon excursion kindly arranged by Mr. A. J. Campbell to a lovely valley which is a regular place of pilgrimage at this season for gatherers of *Acacia*, a trip to Black Rock with Mr. Robert Cain, one to the Golf Links with his brother, and an exciting motor-drive over impossible hill-tracks past Fern-tree Gulley in the direction of Warburton. With Mr. Campbell's party, which included the General Secretary of the Association, we saw several of our old favourites, such as the Yellow Robin; one member reported a Ground-Thrush (*Turdus lunulatus*); and all of us watched with interest a pair of Brown Tit-Warblers (*Acanthiza pusilla*) busily building their nest in a wayside bush. On the sea at Black Rock we expected to meet with one, if not two, of the smaller Penguins; but the weather was, unfortunately, too calm to drive them in, though Gulls (*Larus novæ-hollandiæ*) and Terns (*Sterna nereis*) were observed in the offing. On the shore we had better luck, for after some trouble we identified several White-browed Scrub-Wrens (*Sericornis frontalis*) lurking on the ground under the bushes, and satisfied ourselves that two or three very dark Honey-eaters flitting along the gum-trees by the roadside were the Black Honey-eater (*Myzomela nigra*). If we were right, they were probably on migration. At the Golf Links we saw a Raven (*Corvus marianæ*), a few Crows (*C. coronoides*) and Pipits (*Anthus australis*), and a Lark (*Alauda arvensis*). The motor-drive produced little until evening. We walked up Fern-tree Gulley without seeing anything of special interest, though we were on the look-out for the Pilot-Bird (*Pycnoptilus floccosus*) and Lyre-Bird (*Menura victoriæ*). Probably it was a little early in the season for many species, and certainly we had not half time enough to examine even the scrub close to us. In the wooded lands towards Warburton we heard many a song, and hunted several likely spots for Lyre-Birds' nests; but we were not fortunate, and were only able to be sure of the beautiful notes of more than one Honey-eater as yet unknown to us, and unluckily undeterminable. In fact it was getting dusk, and colours did not shew up. The whole place, however, swarmed with Kookaburras, and we greatly enjoyed the musical chorus with which they provided us. We had crossed right over the Ranges in most lovely scenery, with steep ascents and descents, amidst rough scrub with little cultivation and occasional patches of tree-ferns; but we had to hurry back by a longer and more level road, in order to reach Melbourne before dark.

The fine Zoological Gardens of that city provided much that was of interest—water-fowl, in particular, and two Lyre-Birds in one of the aviaries. We only regretted that there was not time to visit them more often, and to remain till evening, when wild birds, such as the Nankeen Night-Heron (*Nycticorax caledonicus*), come in to roost. The Association was entertained one afternoon in the Botanical Gardens by a distinguished company, including our ornithological friends, and it was here that we first met Dr. Leach, who kindly presented us with a copy of his little book on Australian birds, which proved to be invaluable subsequently in the Murray–Goulburn district. In these Gardens the Crimson Parrot (*Platycercus elegans*) was not an uncommon sight; while on the lake there were many of the commoner water-birds, and on a stream that fed it a very tame pair of Black-and-white Fantails (*Rhipidura motacilloides*), which apparently meant to breed there.

On August 19 we departed for Sydney, provided with an introduction from Mr. Dudley Le Souëf to his brother, Mr. A. S. Le Souëf, Director of the Zoological Gardens. Consequently we made it our first object to explore them, after depositing our baggage at the Sydney Hotel, where we were the guests of Sir Philip Sydney Jones. We shall always remember with gratitude the trouble Mr. Le Souëf took on our behalf: he gave up almost the whole day to our interests, and conducted us in the first place over the present Gardens. There we saw many species in the aviaries and on the ponds which we did not meet with elsewhere; admired tame Honey-eaters which fed from our hands, and Doves sitting on their eggs at our feet; and had our first sight of the Coach-whip Bird, after dodging it for some minutes round a bush in one of the enclosures. Naturally we were much delighted with all these opportunities, but they paled before the light of our experiences in the afternoon, when we crossed the Harbour with our mentor to the site of the new Zoological Gardens. This is a perfect paradise for birds, and will, I believe, long continue to be so. There are a few new villas and recently made roads near at hand, but the Gardens themselves resemble a spacious park and are full of wild life. On one side they rise with a steep bank from the Harbour, on the other they fall away into ravines of different sizes;

while the intermediate ground is at present covered by old scrub, where it has not been found necessary to clear it, and is more or less a wild table-land cut up by ridges and sheltered depressions. A few animals have already been brought over from the old Gardens and relegated to temporary apartments; but the native birds are the chief charm of the place and accord well with the native plants which Mr. Le Souëf, with admirable judgment, alone admits to his sanctuary.

We crossed the Harbour by a ferry, and took a slanting path up the bank, meeting at once with old friends and new. Close to the water, on a sapling gum, a pretty Honey-eater was disporting itself, which we had no difficulty in identifying as the White-eared species (*Ptilotis leucotis*); and we had hardly finished watching it, while listening to its clear notes, when our conductor pointed out a neat little round hole in the bank of a dry water-course and told us that it belonged to a Diamond-Bird (*Pardalotus punctatus*). The earth was so friable that we were able to remove and replace it without damaging the small round nest of Eucalyptus bark, which contained three transparent white eggs, resembling those of the Kingfisher in miniature. Cuckoos of more than one kind were calling in the scrub, since migration-time had fully arrived, and amongst them we made out the Pallid Cuckoo (*Cuculus inornatus*), uttering its ringing notes. But we had a much better sight of the Fan-tailed Cuckoo (*Cacomantis rufulus*), for, as we were listening to its mournful trill, the bird suddenly dashed across our path and, turning at right angles, settled in full view on a sapling, with its back towards us and its tail expanded. We were soon at the top of the main slope, where the menagerie is being gradually housed; but we passed quickly over the partly reclaimed ground into the woodland beyond. Here a plaintive note attracted our attention, which our guide believed and hoped to be that of the rare Black-eared Cuckoo (*Mesocalius palliolatus*). He proved to be quite correct; but we had considerable trouble in approaching the restless creature, which finally took up its station at the top of a tall leafless tree within easy range of our binoculars. Tit-Warblers, Thornbills, White-eyes, Blue Wrens, and other species were fairly abundant, while a bird which would not be induced to leave a thicket may have been a Ground-Wren, though it was more probably the Scrub-Wren (*Sericornis frontalis*); we were also lucky to meet with a "Blue Wren" that was new to us (*Malurus lamberti*). It was now dusk, and we were reluctantly obliged to forego further researches.

When in the town the business of the Association kept me from visiting the Museum, and I much regretted not being able to make the acquaintance of that eminent ornithologist Mr. A. J. North, while a trip by tramway to Botany Bay was too hurried to have any worthy results. On Sunday, August 23, however, Mr. Le Souëf added to his kindness by arranging for an expedition to the National Park in company with a friend and his wife. This sanctuary of the animal life of New South Wales is an immense tract of country on both sides of a fairly broad river. A good road leads to it, and there is a "rest-house" where visitors can stay; but most people seem to use it as a resort for day excursions, and reach it by one of two railway stations which are within easy walking distance. The scenery is splendid and doubtless varied; while the portion near the hotel, which alone we visited, consists of perfectly primeval scrub-land, rising from the sides of the water to a very considerable height. The Park, as seen from the station road, gives the impression of a spacious wooded valley. Our new friends' motor would not hold all our party, so Mr. Le Souëf and I journeyed by train, to meet the others at the hotel. As we descended by a steep road from the station we kept a sharp look-out for Rock-Wallabies on the low cliffs, while we were constantly on the alert for a possible sight of the rare Black Cockatoo (*Calyptorhynchus funereus*) and King-Parrot (*Aprosmictus cyanopygius*), which occur in the neighbourhood. However, we had no luck with regard to any of them, a fact probably due to the presence of Sunday holiday-makers and the few hours at our disposal. But we had no reason to complain of our fortunes in other respects. First, we were shown a previous year's nest of the local Lyre-Bird (*Menura superba*), which was in a state of good preservation; it was built among low vegetation on steep ground just below the brow of the actual bank of the river and was quite accessible. Such appears to be the natural site for the bulky domed structure of stick, bark, and roots, which is fairly easy to see at close quarters, but difficult to find in acres of scrub. In many of the districts, however, that this splendid bird frequents, discovery is made more simple by its acquired habit of building in the head of a tree-fern, where foxes are less likely to hunt. Midday is not the proper time to hear the Lyre-Bird and admire its powers of mimicry, which it exercises chiefly in the early morning and evening; so we considered ourselves fortunate even to hear its notes in the distance, as we did on our return journey to the station. Later it will be seen that I had full compensation for my disappointment when I visited the Poowong country in Gippsland.

We spent a considerable time in a subsidiary gully looking for a new nest, as a pair of birds commonly came to feed there with the custodian's fowls in the early part of the day; but we were unsuccessful both in this respect and in our attempt to locate a pair of Coach-whip Birds, which were unusually silent and characteristically skulking. Taking a boat we then rowed quietly upstream for nearly a mile, and were rewarded by the sight of a Blue Kingfisher (*Alcyone azurea*) sitting motionless on a low bough, where it displayed to great advantage its azure upper and orange under surface; we also disturbed a couple of Black-throated Grebes (*Podiceps novæ-hollandiæ*) at a bend in the stream, and had an excellent view of the uncommon Wonga-wonga Pigeon (*Leucosarcia melanoleuca*) stealing up the sloping trunk of a falling tree. We lunched on shore at a spot well situated for bird observation, and there searched other gullies and banks without coming across any species that was new to us, our chief wish being to discover a bower of the Satin-Bird (*Ptilonorhynchus violaceus*). We did not succeed in this, but had no doubt that the playground was not far off, as a hen-bird passed fairly close to us while we were resting. We should have much preferred a sight of the lovely blue-black male, but even the green female was hailed with delight.

Our greatest success, however, was yet to come. Before we returned to the boat Mr. Le Souëf suggested that we should examine the little caves along the neighbouring bank, where he had in former years observed the Rock-Warbler (*Origma rubricata*), a species entirely confined to New South Wales. Hardly had we begun our search when he stopped and pointed out a nest. To an Englishman this little bird at once recalls the Dipper, for it frequents stony water-courses, hops about the boulders, and builds an oval nest in rocky places, where it lays pure white eggs. But it is less aquatic, and breeds in a cave or under some overhanging ledge. Our nest was situated, as is most usual, in a small cave of no great depth, and consisted of a ball of roots and moss, within which three eggs, resembling those of the Wryneck, reposed on a warm lining of feathers. The structure was suspended from the roof of the cave by a string of fibre, which seemed hardly strong enough to support the lusty young birds, and this string was fixed or stuck in some extraordinary way into the smallest of crevices in the roof. Evening was now at hand, so that we were reluctantly obliged to make for the boat and think of our homeward journey, after one of the most enjoyable expeditions in which we had ever taken part.

The following two days were more or less wet and misty, but the next morning I spent in the Sydney Botanical Gardens, chiefly occupied in watching several very tame birds, and in particular a Grass-Parrot (*Psephotus hæmatonotus*) feeding on the lawn. I had not yet seen one at such close quarters. In the afternoon we started for Brisbane, but, as I returned almost at once to Sydney, I need only say that I added to my list the Topknot-Pigeon (*Lopholæmus antarcticus*) and the Wood-Duck (*Chenonetta jubata*) seen from the train, when I was vainly looking out for Emus on the journey through the Emu Plains, and the Sacred Kingfisher (*Halcyon sanctus*) in the outskirts of Brisbane itself. I made the acquaintance of Dr. Hamlyn Harris at the Museum, and inspected the fine collection of birds under the guidance of his head-assistant, but was unable to accept his tempting proposal to visit the neighbouring ranges in search of Pittas, Bronze-wing Pigeons, and other scarce species. During my short stay I was most hospitably entertained by the Hon. A. J. Carter and his family, who added to their kindness by looking after my wife till her ship started for the Malay States. On account of the War, the Home Government had taken over many of the Australian liners, and their action gave me a further ten days in the country.

Consequently I telegraphed to accept a provisional invitation of the Cains to visit their son William's station up the Murray River, and to arrange, if possible, for a couple of days in Gippsland. The latter was made possible by the skilful management of Robert Cain and Mr. C. L. Barrett of Melbourne, who sent me with an introduction to Mr. L. C. Cook of Holbrook, near Poowong, well known for his writings, published in 'The Emu,' on the Lyre-Bird and other uncommon denizens of the scrub. My most cordial thanks are due to all these friends for the way in which they met my wishes, cared for me at Melbourne, or guided me over the districts in which they resided.

I left the capital for Echuca on the afternoon of September 2, and spent the night at that small town, while in the morning I had ample time to investigate a grove on the nearest part of the river. It contained several Honey-eaters and Parrots that I had met with previously, and I watched for an hour some birds, which I failed to identify with certainty, flitting about the tops of the highest gum-trees. I took them to be Bell-Miners (*Manorhina melanophrys*). There was no doubt, however, about the Noisy Miner (*Myzantha garrula*), though I only noticed one pair, which were busily engaged in laying the foundation of their nest with dry leaves in a sapling. On them I spent most of the morning. Towards midday William Cain arrived, and soon after lunch we drove off to his station of Madowla Park, having paid a further visit to the Noisy Miners. Many Grass-Parrots and Rosellas in small flocks were disturbed from the roadside as we passed, first through cultivated land and then through wilder scrub country; but we had no time to alight and hunt for birds, as we had to cover something under twenty miles before dinner time.

Madowla Park lies in the fork between the Goulburn and Murray Rivers. It comprises big paddocks for stock, irrigation-land fed by channels from the Murray which are filled by a pumping engine. and wide stretches of barren ground varied by occasional belts of timber of no great extent. Gardens surround the house, which looks out on a creek or lagoon of considerable length and breadth. At the end of the property in one direction lies the Murray, bordered by tall gum-scrub above its bare mud-banks. Consequently there is no lack of suitable localities for birds of many sorts, and the avifauna is rich and varied. I could not have had a better field for my researches, while my kind host was uncommonly interested in my pursuits and entered into them so warmly that he gave up nearly the whole of his time to accompany me.

Even the immediate surroundings of the buildings held much of interest. The kitchen-garden was only remarkable for Greenies and so forth, but the flower-garden, which was fringed with tall gums and was full of orange trees laden with ripe fruit, was the haunt of Diamond-Birds, Parrots, and a couple of pairs of the Harmonious Thrush, apparently seeking a site for their nests and generally in full song. A strip of this flower-garden continued in front of the house by the side of the lagoon, and here the water below the shrubs was edged with a growth of sedge, where I understand that the Reed-Warbler (*Acrocephalus australis*) breeds later in the year. A pair of Black-and-white Fantails (*Rhipidura motacilloides*) were often observed playing about the roof of an outbuilding, and not very far off were a couple of Restless Flycatchers (*Sisura inquieta*), but neither species seemed to be breeding. In severe weather Diamond-Birds roost under the verandah, but they had already left, and only Sparrows remained.

The morning after my arrival (September 4) my host and I started for the irrigation-lands, which were just in sight of the house. Passing along the lagoon we disturbed Moorhens, Coots, and Black Ducks, and (what was more to the purpose) a small company of five Straw-necked Ibises (*Carphibis spinicollis*)—a good augury for the occurrence of uncommon species. We first sighted them standing in the shallows, but were able to approach near enough to examine them with field-glasses. Then we walked down the banks which controlled the irrigation to an enclosure with water still lying on it, where we were at once attracted by a flock of moderate-sized birds running in and out of the mud and water among a number of Peewees and Crows. As they always moved away from us it was some little time before we obtained a really good view, when they proved to be Black-fronted Dotterels (*Ægialitis melanops*). A hunt for the nest of a Brown Tree-Creeper (*Climacteris picumna*) in a rotten stump was unsuccessful, though a bird we saw climbing about it caused us to suspect that its mate was incubating; but we soon after had better luck in meeting with the Orange-winged Nuthatch (*Neositta chrysoptera*). There were plenty of "Magpies" (all, I believe, *Gymnorhina leuconota*), and we were shown an old nest, with fencing-wire as its chief constituent. When the sun began to trouble us we retired to the shade of a row of small gum-trees and sat down to watch. Just as we were settling down a Black-faced Cuckoo-Shrike (*Coracina robusta*) flew past and pitched on a tree not far off, so we were obliged to get up again and steal within the range of our binoculars. Hardly had we decided upon the species and resumed our seats when a bird with a loud monotonous call perched right above us, but was difficult to identify in the thick foliage.

It proved to be a species that I had not seen before, the Blue-faced Honey-eater (*Entomyzon cyanotis*), one of the prettiest of a beautiful family. After the lapse of a few minutes Parrots also began to arrive, old friends for the most part, but accompanied by the Mallee Parrot (*Barnardius barnardi*). We quite expected the Blue-bonnet (*Psephotus xanthorrhous*) also, but were never able to see it. An occasional Heron was observed as we wended our way back to the gardens, while the report that two White Ibises had been seen on the property made us again try the banks of the lagoon. And there they were, two fine examples of *Ibis molucca* feeding side by side in rather deep water. We purposely put them up after a few minutes, and enjoyed the sight of their flight as they passed very near to our shelter.

In the afternoon the chief sight was a splendid flock of Galahs (*Cacatua roseicapilla*) which lived on a paddock just outside of the front gate. On this home-field they were feeding like a flock of tame Pigeons, and resembled them in the way they rose grudgingly and settled again almost immediately. But there the likeness ended, for, as they circled round us, their rose-coloured breasts showed to the greatest advantage in contrast with their grey backs and pink-white heads, while their screeching cries were as characteristic as their wheeling flight and aërial evolutions generally. On the next pasture we put up a Pipit (*Anthus australis*) and several birds which at first puzzled us, but proved to be Brown Song-Larks (*Cinclorhamphus cruralis*), while we were accompanied for a considerable time by a pair of Spur-wing Plovers (*Lobivanellus lobatus*). They were certainly on their breeding-grounds, but we could find no eggs, and probably they begin their excited wheelings while selecting their future nursery, just as their relatives the Peewits do in Britain.

The next day a Parliamentary Election took Cain to a neighbouring school, but the drive enabled me to see more of the country and also more of the familiar birds. Returning in the evening we stole quietly to the front of the house just before it became dark, as several species were accustomed to resort to a little fountain near our bedrooms to drink. We were precisely at the right time, for a lovely male Mistletoe-Bird (*Dicæum hirundinaceum*) was sitting on the rim and displaying his brilliant scarlet breast, while a pair of Ground Doves (*Geopelia placida*) were making for the water. The former of these species is not easy to approach so closely, as it loves the very tops of the trees: the latter is distinctly rare.

On Sunday afternoon we took a drive over the bare flats beyond the irrigation-fields in search of Stone-Curlews (*Burhinus grallarius*), which we heard from the verandah every evening, simultaneously with Boobook Owls. The notes and habits of the former, so far as I could judge, were similar to those of our British bird, and the spots frequented were like our East Anglian warrens, though nearly bare of herbage and without flints. We flushed a single example in a narrow belt of scattered gum-trees and a pair on the open ground beyond, where I hunted for an hour or so for the eggs without success. They kept returning to the same place, but I do not think that the eggs had been laid. On the Murray banks I had my first sight of Wood-Swallows (*Artamus tenebrosus*), and was informed that the White-browed and Masked species occurred there, but arrived somewhat later. Before we drove back we had a splendid sight of a very large company of White Cockatoos (*Cacatua galerita*) which were feeding in a paddock. When disturbed they all flew up uttering appalling screeches, and settled on the low trees around, but soon took to the ground again, with a sentinel left on guard. In some ways they reminded me of a flock of Rooks, in others of Gulls feeding on ploughed land. A striking feature of the landscape at this point was a knoll covered with old Casuarinas ("she-oaks") shewing in strong contrast to the ubiquitous gum-trees.

The previous evening at dusk we had shot a specimen of a Parrot for determination—one of a small party that regularly came to roost in the high gums by the lagoon, and had puzzled Cain before my arrival. It was chiefly blue and yellow, but did not seem perfectly in accord with any book description; so we forwarded it to Mr. Dudley Le Souëf, who kindly identified it for us as the rare Yellow Parrot or "Murray Smoker" (*Platycercus flaveolus*). This beautiful bird was our last prize, for the next day I had to hurry away—much against my will—from this paradise of birds, to catch the train at Echuca. Even on the return drive our luck held, for we had a splendid view of a fine Wedge-tailed Eagle (*Uroaëtus audax*) soaring above the woodland where it was known to breed, while we met with a flock of White-browed Babblers (*Pomatorhinus superciliosus*) playing about the road, a company of White-winged Choughs (*Corcorax melanorhamphus*) flitting about the scrub, and a solitary Brown Hawk (*Hieracidea berigora*) sitting motionless on a tree. Red-tipped Diamond-Birds (*Pardalotus ornatus*) were not new to me, but I was glad to see a pair at very close quarters as a final treat, before I said good-bye to my host at the station. His kindness and thoughtfulness I shall never forget, while I can only hope that he enjoyed our bird-watching as much as I did.

My thanks are equally due to his brother Robert, who again met me in Melbourne, with the news that all was in readiness for my visit to Gippsland. Early on September 8 I took train for Loch, where I was met by Mr. L. C. Cook and by him driven to Holbrook. There I found a whole family—wife, father, sister, and uncle—at my disposal. I hope that they will take my expression of gratitude to the Cains to refer in equal measure to them, and I can assure them that my final expedition was of equal interest to any that I made while in hospitable Australia. A meal was ready when I arrived at the farm, where I was introduced to Mr. Cook's relatives, and his sister and uncle accompanied us to the very considerable area of old scrub, which is known to the local ornithologists and all readers of 'The Emu' as the haunt of that curious and beautiful creature the Lyre-Bird (*Menura victoriæ*). The scrub is chiefly on one side of a valley, into which we descended through a patch of ground denuded of its high trees, but still covered with bushes and dense vegetation. This upper part of the valley is a great haunt of the Coach-whip Bird (*Psophodes crepitans*), one of the species whose name really corresponds with its voice; and when my friends began to imitate its sharp "whip-crack" note, the birds joined in from all sides, while I was still under the impression that our party alone was making the sounds. In these lower saplings and bushes the Satin Bower-Bird certainly breeds, for some boys had taken two eggs the year before, which I saw at the farm, accompanied by that of the Lyre-Bird. The nest had been removed, but I saw the place where it had been built, in the fork of a sapling, after the fashion of our Jay. A bower, which probably belonged to the same pair of birds, was perhaps a quarter of a mile distant, but this had also been removed, as it was out of repair and the male had doubtless deserted it. We heard the Bower-Bird's notes when we were quietly watching the higher scrubs, but we never saw it on this occasion.

Passing below the shade of the trees we made straight for the part of the bank where Mr. Cook's well-known pair of Lyre-Birds live; there are at least two pairs in this valley, but one of them is much less fearless than the other, and hardly changes its breeding-place from year to year. We first inspected the huge nest built in the top of a sloping tree-fern, and the little blackish nestling, and then sat down close to it on the chance of a glimpse of the male; but though the hen soon came to keep us company, scratched about like a tame fowl within a few yards for the little snails on which these birds feed, and kept scrambling up and perching on a tree-fern stump to inspect us, while uttering a sort of querulous grunt, her consort was too wary to appear *. We remained in these delightful surroundings for some time, and then I waited alone while the whole Cook family essayed a "drive" towards me from the lower edge of the scrub, hoping that the male, which prefers the ground except at nightfall, would run up into sight like a cock Pheasant. Apparently, however, he broke away—certainly he did not arrive; so, when the drive was over we hunted the scrub for nests. Miss Cook cleverly discovered an empty and well-hidden Lyre-Bird's nursery at the side of a little gully, and I came across a small structure, probably belonging to an *Acanthiza*; but evidently we were too early for eggs in general, while we did not discover any trace of a Bower-Bird's bower or of a Coach-whip Bird's nest. Finally, as evening drew near, we took up our position in a likely spot where Lyre-Birds were accustomed to perform. We soon were aware of at least three climbing up the trees to roost, and one male was kind enough to run the whole gamut for my benefit. We often hear of the wonderful powers of mimicry possessed by these birds, but the reality almost passes imagination. Imitations of a dog's bark, a hen's cluck, or a saw in action are varied by studies of other birds' notes, the whole continuing for a considerable length of time. We were fortunate enough to hear our male cover almost the whole range of which he was capable; in fact, Mr. Cook said that he omitted only one item of his best performance. And then we bid farewell to this wonderful valley, and made the best of our way to Holbrook in the dark.

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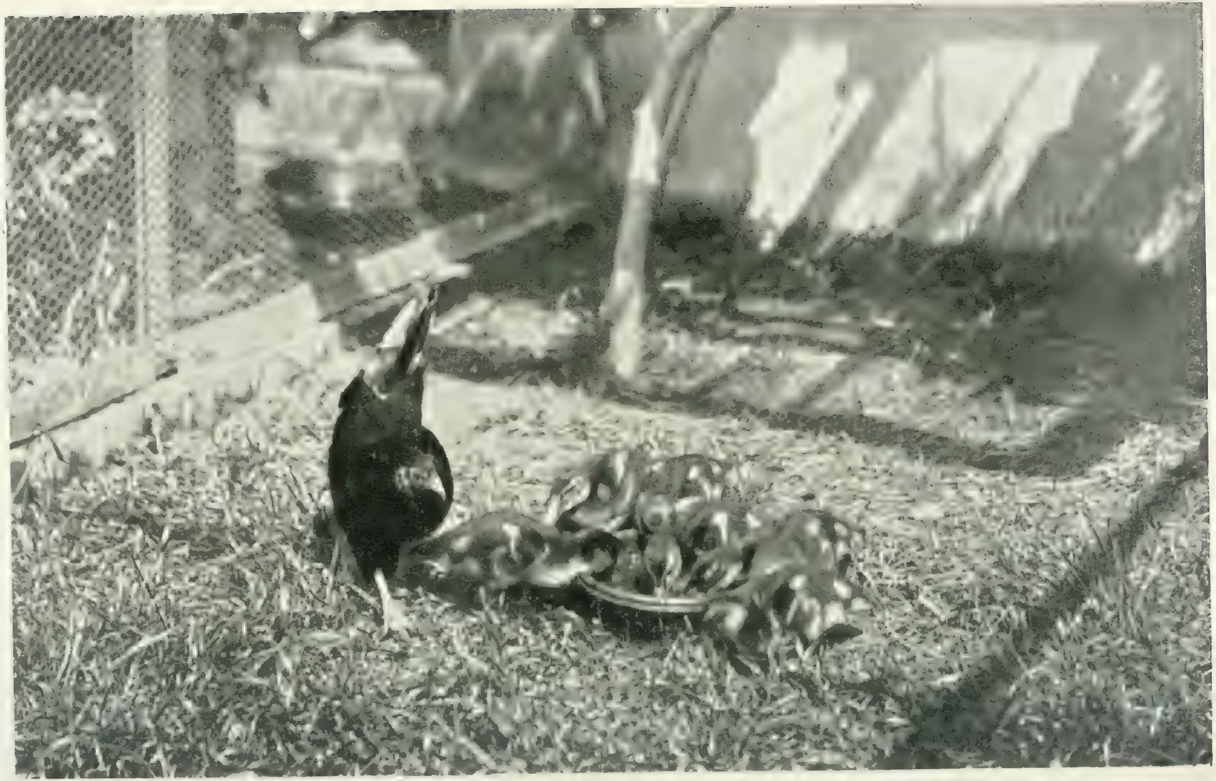
* For a full account and photograph of this bird see "The Emu," vol. xvi. 1916, pp. 101–103.

I was obliged to leave early the next morning, cheered by the voices of the Grey Bell Magpie (*Strepera versicolor*) and other species, after a most delightful visit spent in equally delightful company. On the way to the station we crossed a stream noted for the Duck-billed Platypus, though none were visible at the time, while we had a fine view of a row of Kookaburras sitting on the telegraph wires by the roadside. The previous day I had added to my list the Whistling Eagle (*Haliastur sphenurus*), seen soaring in the distance, and the Tawny Frogmouth (*Podargus strigoides*), which was incubating in the fork of a fair-sized gum-tree. The latter was a welcome and a curious sight, for the bird looked as if it were perched or squatting in the fork as a Wood-pigeon does, and little or nothing of a nest was visible. My luck held right up to the station, for a couple of Long-billed Cockatoos (*Licmetis nasica*) flew over the road in full view not long before we reached our destination.

From Melbourne I took the evening train to Adelaide, where I had time next morning to revisit Mr. Ashby's garden at Blackwood for a few hours, and see, in addition to old friends, a small party of the Fire-tailed Finch (*Zonæginthus bellus*) feeding on some newly dug soil. Meanwhile some of my future shipmates met with an Oystercatcher and other waders on the shore at Port Adelaide, but I did not hear of this in time to join them.

The return journey to England was more remarkable for the watch kept for the 'Emden' and 'Königsberg' than for ornithological experiences. We had, however, a day in the primeval scrub at Perth, in Western Australia, among the old-world Cycads and the peculiar Kangaroo's-paw plant, which was in full flower, but met with no birds that we identified positively in the short time at our disposal. On the actual voyage we were accompanied for a time by the Wandering, Black-browed, White-capped, Yellow-nosed, and Sooty Albatrosses (*Diomedea exulans, D. melanophrys, D. cauta, D. chlororhynchus*, and *Phœbetria palpebrata*), the Cape Petrel (*Daption capensis*), the Mutton Bird (*Puffinus brevicaudus*), Wilson's Petrel (*Oceanites oceanicus*), and no doubt other species which I did not observe personally. Crested Terns, Bridled Terns, Gulls (Pacific and Silver), and the Common Cormorant were noticed as we left Fremantle; and a Frigate Petrel (*Pelagodroma marina*) was caught on board later and identified. Tropic-birds, Frigate-birds, and Black Kites belong to the part of our journey nearer to Colombo and the few migrants that boarded us chiefly occurred in the Mediterranean, while no birds were seen that are not usually encountered by the traveller through those seas in autumn. In mid-October we landed safely in England.



MENPES PRESS WATFORD

DUCKLINGS OF ANAS SPARSA

At Gooilust

V.—*On the Breeding of the South African Black Duck* (Anas sparsa). By F. E. Blaauw, M.B.O.U.

(Plate I.)

Anas sparsa is rather a peculiar Duck, and it has a charm of its own, owing to the mystery which surrounds it. When I was in South Africa in the spring of 1914 I only once succeeded in seeing this Duck in its native haunts. I was following the course of a mountain-stream in the Zwarte bergen in the Oudtshoorn district on my way to the Cango caves, and in one of the wildest parts I flushed a Duck of this species. The bird only flew away a short distance, and then kept anxiously looking back at me without going farther away, and this made me think that she had a family hidden somewhere near me.

Although I tried very hard to find the supposed young ones, I did not succeed, probably owing to the banks being full of rank vegetation, in which any number of chicks might safely hide away.

Later on, in Natal, I chanced to come across a pair of these Ducks which were kept in confinement, and which I brought safely home to Holland.

The *male* of this species is larger than the female, and the grey body-colour is lighter in shade, whilst in the female it is nearly black.

The result is that the white spots, which look much like snow-flakes, are more conspicuous in the female.

The wing-bar is very beautiful in both sexes, being of a metallic blue which changes into purple and green, and is edged by a white bar and velvety black.

The bill in both sexes is blue, with a black saddle-mark on the upper mandible which does not quite reach to the head. The nail is black. There is no yellow anywhere on the bill. The legs and toes are orange, clearest in the male. The webs are dusky.

These birds have not the voice of the typical members of the genus *Anas* and have quite different manners. I think that they are nearer in these respects to *Chaulelasmus* than to *Anas*.

After having safely brought home my pair of birds, I put them on a small piece of ornamental water on which were several other exotic water-fowl, and they were soon quite at home.

In spring 1915 the birds began to be very quarrelsome with the other Ducks, and so I took them away and gave them a small pond to themselves, hoping that they would breed. It appeared, however, that their season was past, for they began to moult and nothing came of it.

In the spring of 1916, towards the end of April, the female began to lay in a small box placed among the reeds over the water.

Six eggs were laid, and an abundant layer of down was plucked out of the bird's own breast to cover them. The eggs were rather large for the size of the bird, rather elongated, and of a pale yellow colour with much gloss.

As I was afraid that something might happen to the eggs or chicks if I left them in charge of the old birds, I took them away and put them under a bantam hen, giving the Black Duck some eggs of the Australian Wild Duck instead.

On the twenty-fifth day of incubation the six eggs under the hen hatched. This was on the 29th of May.

The chicks were coloured as follows:—

Upperside and band round the breast, which does not quite meet in front, black. Five or six yellow spots on each side of the body. Sides of the head yellow, with a black line through the eye and a second one a little lower down. Underside white, slightly tinged with yellow. Bill black. Legs and toes pale dusky yellow in front, webs and hind-part of legs dusky.

The little chicks were very active from the first, and fed on ants' eggs and any insect they could catch.

The old female continued to incubate the Australian Wild Duck eggs, and each time she left them in search of food the male kept her company as long as she was about.

A few days before the eggs hatched the male moulted his flight-feathers, and from that moment kept to himself, and only rejoined the female with her foster-children when the moult was completed.

At ten days old the bills of the Black Duck chicks had become bluish-lead colour, and the birds had grown to more than double the size they were when just hatched, and looked sleek and glossy.

At the age of about 24 days the first feathers began to appear—the tail-feathers first and then the shoulder-feathers.

When fully feathered at about two and a half months they were very similar to the adults, but more brownish and the whole underside silvery white. Upperside, head and neck excepted, but including tail-coverts, with a number of buff spots or edges to the feathers. No white spots. Blue wing-bar with its white and black edgings present, but duller in colour. Upper mandible blue, nail black. Underside of under mandible flesh-colour.

At about seven weeks the black saddle-mark on the upper mandible begins to appear, but it is only visible under certain lights when the bill is seen sideways, and is invisible when the bill is seen in front. As the birds get older the black mark becomes more and more plain, and at the age of about nine weeks it is always visible, although not so black as in adult birds. Towards the end of August some of the buff spots of the upperside began to turn into white without a moult, and about the middle of September nearly all the spots had become white. Towards the end of September the birds began to moult, and towards the end of October had acquired the dress of the adults.

Anas sparsa is a very expert diver, diving with as much ease and readiness as a true Diving-Duck to get food from the bottom of the water.

VI.—*Remarks on some recent Collections of Birds made by Mr. G. L. Bates in Cameroon.* By W. R. OGILVIE-GRANT, M.B.O.U.

(Plate II.)

THE Natural History Museum has recently received a collection of birds from Cameroon collected by Mr. Bates, and the following notes refer to this and to another collection made in 1908–9.

In this paper only the Passerine Birds are dealt with; the total number of species in the collections amounts to 156 and these are represented by 588 specimens.

Mr. Bates is well known to have contributed to our knowledge of the Birds of the former German colony of Cameroon. From 1902 onwards *, papers on his collections either by Dr. Bowdler Sharpe or by himself have followed one another in a constant stream, and it is to his indefatigable labours that we owe most of our knowledge of the avifauna of that country.

In the present paper I have only noticed those species about which there is some special interest or which have not previously been sent home by Mr. Bates.

The collections were all made in the southern part of Cameroon, chiefly on the Rivers Bumba, Nyong, and Ja. A map showing these localities and others where Mr. Bates has collected will be found on Plate XI. of 'The Ibis' for 1908.

The following species and subspecies are here described for the first time:—*Apalis jacksoni minor*, *Apalis ansorgei*, and *Bradypterus grandis*.

Heterhyphantes preussi (Reichenow). (Plate II. figs. 2, 2 *a*, 2 *b*.)

Symplectes preussi Reichenow, J. f. O. 1892, p. 442 [Victoria, Cameroon] (♂).

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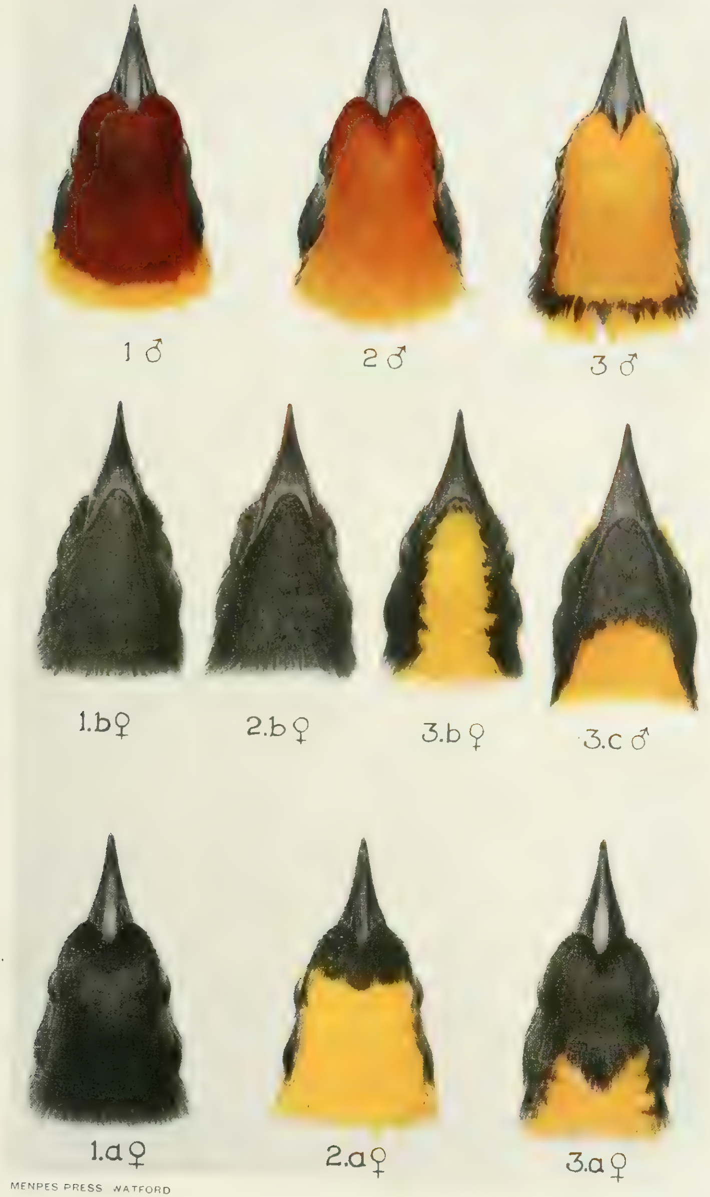
* The previous papers describing Mr. Bates's collections will be found in 'The Ibis,' 1902, p. 89; 1904, pp. 88, 591; 1905, pp. 89, 461; 1907, p. 416; 1908, pp. 117, 317, 558; 1909, p. 1; 1911, pp. 479, 581; 1914, pp. 169, 495.


1 ♂
2 ♂
3 ♂
1.b ♀
2.b ♀
3.b ♀
3.c ♂
1.a ♀
2.a ♀
3.a ♀

MENPES PRESS WATFORD

1. HETERHYPHANTES INSIGNIS.
2. .. PREUSSI.
3. .. DORSOMACULATUS.

Sycobrotus herberti Alexander, Bull. B. O. C. xix. p. 88 (1907) [Pompari, R. Welle].

Phormoplectes dorsomaculatus Sharpe (nec Reichw.), Ibis, 1908, p. 349.

Symplectes auricomus Sjöst. Kongl. Sv. Vet.-Akad. Handl. xxvii. no. 1, p. 86, pl. viii. (not vii.) (1895) [Cameroon]. (Immature female.)

Hab. Known from West Africa: Cameroon, and the River Welle.

This species is quite distinct from *H. insignis* (Sharpe), with which it has been generally united, by Dr. Reichenow and others [*cf.* Vög. Afr. iii. p. 36 (1904)].

H. preussi (Reichenow).	*H. insignis* (Sharpe).
♂. Forehead and crown golden brownish-orange, shading into yellow on the occiput and nape; sides of the head, neck, and throat black.	♂. Forehead, crown, and occiput chestnut; sides of the head black.
♀. Forehead, superciliary bands, sides of the head and throat black; middle of the crown, occiput, and nape yellow.	♀. Forehead, crown, occiput, nape, and throat black.

Heterhyphantes insignis (Sharpe). (Plate II. figs. 1, 1 *a*, 1 *b*.)

Sycobrotus insignis Sharpe, Ibis, 1891, pp. 117, 253, pl. vi. fig. 1 [Mt. Elgon], ♀.

Symplectes croconotus Reichenow, J. f. O. 1892, p. 185 [Buea, Cameroon], ♀; Sjöst. Kongl. Sv. Vet.-Akad. Handl. xxvii. no. 1, p. 88, pl. ix. (not viii.) (1895) [Cameroon].

Symplectes castanicapillus Sjöst. Orn. Monatsb. i. p. 43 (1893) [Cameroon]; id. Kongl. Sv. Vet.-Akad. Handl. xxvii. no. 1, p. 88 (1895).

Heterhyphantes insignis Bannerman, Ibis, 1915, p. 516 [Cameroon Peak].

The range extends from East Africa to Cameroon.

Heterhyphantes dorsomaculatus (Reichenow). (Plate II. figs. 3, 3 *a*, 3 *b*, 3 *c*.)

Symplectes dorsomaculatus Reichenow, Orn. Monatsb.

1893, p. 177 [Jaunde, Cameroon]; id. J. f. O. 1896, pl. iv. upper fig., ♀.

The male resembles the male of *H. preussi* (Reichw.), but the entire top of the head and nape are golden yellow; the throat is black, partly yellow on the middle of the basal portion, and the rump is black instead of yellow.

The female differs from the female of *S. preussi* in having the crown as well as the forehead black and only the occiput yellow; while the chin and middle of the throat are yellow, the sides of the head and sides of the neck only being black; rump black.

Apparently confined to West Africa: Cameroon.

Hyphantornis aurantius (Vieill.).

According to the most recent works the female of this species is said to be similar to the male, but with the upper parts olive-green. In the British Museum there are two females of this species which have the appearance of being fully adult; in these birds the chin, throat, fore-neck, and sides of the head are pale dull olive-yellow, and the rest of the underparts are white, greyish on the sides and flanks.

Sitagra ocularia crocata Hartl.?

Specimens of a subspecies of *S. ocularia* agree with the description of *Ploceus ocularius brachypterus* given by Reichenow, Vög. Afr. iii. p. 47; but the bird described by him is not *Ploceus brachypterus* Swains. (Birds W. Afr. i. p. 168, pl. x.) The latter has the entire crown and nape golden orange-brown and a differently shaped culmen, while in the present form the forehead and crown are golden-yellow and the occiput is olive-yellow like the nape; the culmen, moreover, is nearly straight, not curved as in *S. brachypterus*.

Malimbus coronatus Sharpe.

Immature males and females in first plumage have the bill light horn-colour instead of black, the lower mandible in dry skins being whitish. In *both sexes* there is an orange-brown patch on the crown which is apparently replaced by black feathers at a later stage in both sexes, though in the male the crown eventually becomes scarlet.

The adult female is black, much like *Melanopteryx maxwelli* Alexander in general appearance, but the bill is stouter, the culmen more curved, the basal portion of the feathers of the mouth darker grey and the wing longer, 85 mm. or more, while in *M. maxwelli* the wing is less than 80 mm.

Malimbus cassini Elliot.

The female of this species does not appear to have been described. Mr. Bates has sent home two examples marked female, both of which appear to be in immature plumage. The general colour is black, with the chin, throat, and chest mixed with pale orange-red, especially in one which seems to be the younger bird of the two.

Malimbus malimbicus (Daud.).

Malimbus nigrifrons Hartl.; Sharpe, Ibis, 1908, p. 351.

The characters pointed out by Sharpe as distinguishing *M. nigrifrons* Hartl. are no doubt merely individual.

Specimens from northern Angola collected by W. J. Ansorge have the lower breast and belly washed with grey rather more markedly than in any bird from Cameroon.

Camaroptera superciliaris Fraser.

The type of this species procured by Fraser on Fernando Po is in the British Museum. I have little doubt that *C. flavigularis* Reichenow, also from Fernando Po, is founded on young examples of the same bird. Three specimens collected by Boyd Alexander and E. Seimund agree exactly with Dr. Reichenow's description and figure of his *C. flavigularis*, and are no doubt quite immature birds, as is shown by the texture of the flank-feathers, which are very soft and downy. As in *C. superciliaris*, the middle of the belly is pure white.

C. superciliaris kamerunensis Reichw. Orn. Monatsb. xx. p. 29 (1912) from Bipindi, Cameroon, is a tolerably distinct race, the underparts being washed with grey. This character is noticeable in quite young birds, which are easily recognisable from the young of *C. superciliaris* by their darker underparts.

Outside Fernando Po, the true *C. superciliaris* appears to occur in the eastern Congo Forest, where Woosnam procured an adult male example. There are also three specimens from the Gold Coast and one, a male, from Yonnibanna, Sierra Leone, obtained by Major H. J. Kelsall. The last-named bird was referred to by him ('Ibis,' 1914, p. 206) as typical *C. superciliaris*, but it seems to be rather more brilliantly coloured than any bird from Fernando Po, while the bill is shorter and rather less stout. These differences may, however, be individual.

Birds procured by W. J. Ansorge at N'Dalla Tando, northern Angola, appear to be referable to *C. s. kamerunensis*, but the breast and sides of the body are washed with a rather more olive-grey tint; one male bird, however, from the River Ja, Cameroon, is inseparable in this respect.

C. s. ugandæ S. Clarke [Bull. B. O. C. xxxiii. p. 136 (1914)] has been separated on account of its whiter belly and longer tail.

Apalis jacksoni minor, subsp. n.

Similar to *A. jacksoni* Sharpe, but considerably smaller, the black on the chin and throat narrower and confined to the middle portion of the latter and less extended towards the chest; white tips to the tail-feathers narrower, those of the outer pair about 12 mm. as compared with about 24 mm. in *A. jacksoni*. Iris greyish-brown; bill black; feet light flesh-colour.

A. jacksoni.	Wing. mm.	Tail. mm.	*A. j. minor.*	Wing. mm.	Tail. mm.
5 males	54–56	60–63	2 males	49–50	50–53
2 females ..	51	50	4 females ..	47–48	44–47

Typical examples of *A. jacksoni* from East Africa and Uganda were met with by the late W. J. Ansorge at N'Dalla Tando, northern Angola. *A. j. minor* was met with at Esamesa and Bitye on the River Ja, Cameroon, 1500–2000 ft. A female was also procured by the late Boyd Alexander at Angu on the Welle River (about Lat. 24° E., Long. 4° N.).

Types in the British Museum. ♂ ♀. Bitye, River Ja, 8. xii. 12. Nos. 5148, 5149.

Apalis ansorgei, sp. n.

Adult male. Near *A. nigrescens* Jackson, and, as in that species, the four outer pairs of tail-feathers are white, but the crown and upperparts are grey tinged with brownish, instead of deep brown. Iris light red; bill black; feet burnt-sienna. Wing 48, tail 50 mm.

Hab. North Angola.

Type in the British Museum. ♂, No. 774. N'Dalla Tando, N. Angola, 15. ix. 08. W. J. Ansorge Coll.

Apalis rufigularis (Fraser).

Sharpe has already pointed out in 'The Ibis,' 1908, p. 320 that his *Euprinodes leucogaster* (1904) is synonymous with *E. schistaceus* Cassin (1859); also that *E. olivaceus* (Strickl.) (1844) is founded on young examples of *E. rufigularis* (Fraser) (1843). He did not, however, suspect that *E. schistaceus* and *E. rufigularis* were respectively the male and female of one and the same species.

All the adult grey-throated specimens before us, eight in number, are males, and there are several immature examples marked as males which have grey feathers making their appearance on the throat.

All the rufous-throated specimens, sixteen in number, are females with the exception of three, viz., two from Fernando Po collected by E. Seimund and Boyd Alexander respectively, and one from N'Dalla Tando, northern Angola, procured by W. J. Ansorge. I believe that in these three instances the sex has been incorrectly determined and have little doubt that the grey-throated and red-throated birds are of one species and should be known as *A. rufigularis* (Fraser), that being the oldest name. Mr. Bates is certainly of this opinion (*cf.* 'Ibis,' 1911, p. 616).

In the Orn. Monatsb. xx. p. 28 (1912) Dr. Reichenow described his "*Apalis rufogularis kamerunensis*" from southern Cameroon which must be added to the synonymy of *A. rufigularis* Fraser, the type-specimen of which, from Fernando Po, is in the British Museum.

Bradypterus grandis, sp. n.

Adult male. With the general appearance of *B. graueri* Neumann, but slightly larger and with an unusually long tail composed of ten instead of twelve feathers. The rather large blackish spots on the chest are continued over the throat to the chin, but are not so rounded or so numerous as in *B. graueri*; an indistinct brownish-white band above the eye and faintly indicated behind; entire upperparts dark brown, with the rufous tinge less pronounced than in *B. graueri*; lesser and median wing-coverts with brownish-buff margins; ground-colour of the throat and the middle of the breast and belly pure white; sides, flanks, and under tail-coverts olive-brown, the last-named paler. Iris brown; bill black, grey beneath; feet grey.

Total length 190 mm.; wing 66; tail 79; tarsus 28.

Type in the British Museum. ♂ ad. Bitye, River Ja, 2000 feet, 24. iii. 14. No. 5782.

Since the publication of my notes on the genus [Trans. Zool. Soc. xix. p. 354 (1910)] a large number of new names have been added; the descriptions of all these have been examined, but none in any way resemble the bird described above except *B. graueri,* which has very distinct eyebrow stripes prolonged above the ear-coverts.

Bradypterus brachypterus centralis Neum.

Bradypterus brachypterus centralis Neum. Bull. B. O. C. xxi. p. 55 (1908) [Lake Kivu].

Four specimens procured by Mr. G. L. Bates at Akonolinga, River Njong, in the interior of Cameroon, appear to belong to this form, having much darker brown upperparts than in typical *B. brachypterus* and with only a trace of a rufous wash on the rump and upper tail-coverts, the black spots on the foreneck more pronounced, and the flanks and under tail-coverts less rufous than in *B. b. abyssinicus* Blundell & Lovat. There are evidently several geographical forms of this species, but without further material they are difficult to define.

Schœnicola apicalis (Cab.).

Schœnicola brunneiceps Reichw. Orn. Monatsb. xv. p. 172 (1907) [N. Uganda].

S. brunneiceps is without doubt based on an immature specimen of *S. apicalis*. There is a young bird from Buddu, Uganda, in the Jackson Collection which agrees exactly with the description, while other adults from the same locality are typical *S. apicalis*.

Turdinus rufipennis (Sharpe).

Turdinus albipectus minutus van Someren, Bull. B. O. C. xxxv. 1915, p. 126 [Mabira Forest].

Turdinus minutus van Someren, Ibis, 1916, p. 468.

In the 'Transactions' of the Zool. Soc. xix. pp. 379–380, I discussed the position of *Turdinus fulvescens* Cassin and *T. cerviniventris* Sharpe at some length. Subsequently ('Ibis,' 1911, p. 624) Mr. Bates, who had examined the type-specimen of *T. fulvescens* Cassin in the Museum of the Academy of Sciences, Philadelphia, pointed out that Cassin's name was referable to the species with no white on the breast and not to the white-breasted form as I had supposed. My mistake arose from the fact that in the British Museum there are *two* examples of *Turdinus* collected by Du Chaillu on the Camma River (?) and marked "*Turdirostris fulvescens* Cass." in G. R. Gray's handwriting. These rather soiled specimens were believed to be co-types of Cassin's species, and one undoubtedly is so; but the second represents a different species, viz., the white-breasted form *T. rufipennis* Sharpe. Mr. Bates corrected this mistake, but did not explain how it had arisen.

In 'The Ibis,' 1916, p. 468, Dr. van Someren denies the identity of *Turdinus barakæ* Sharpe from Toro with *T. rufipennis* (Sharpe) from Gaboon [*cf.* Ogilvie-Grant, Trans.

Zool. Soc. xix. p. 379 (1910)]. He even goes so far as to say that "no birds in any way resembling *T. barakæ* have been procured in Angola, Cameroon, or anywhere on the west coast." I am quite at a loss to understand what he can mean by making such an incorrect statement. I write with the whole series of *Turdinus* spread out geographically before me, and the identity of Gaboon and Cameroon birds (*T. rufipennis* Sharpe) with those from the Upper Congo (*T. albipectus* Reichenow) and from Toro district (*T. barakæ* Jackson) is obvious.

Dr. van Someren had access to the series in the British Museum, which makes his positive statement more difficult to understand. As regards his *Turdinus albipectus minutus* from the Mabira Forest, it appears to be merely a rather small female example of *T. rufipennis* in which the sex has been wrongly determined, and it can be *exactly* matched by a female from Cameroon with a wing measuring 66 mm. (*i. e.* 1 mm. more). It is incredible that the Mabira Forest should contain three so closely allied subspecies, viz. *T. barakæ*, *T. minutus*, and *T. albipectus* as Dr. van Someren asserts, and I am absolutely convinced that all these are merely synonyms of *T. rufipennis*.

In a series of twenty-three specimens from Cameroon the wing-measurements are as follows:—10 ♂, 70·5–76 mm., average about 73·5 mm.; 7 ♀ imm., 66–74 mm., average about 70 mm.; 4 ♂ imm., 64·5–67 mm.; 2 ♀ imm., 67 & 68 mm.

Turdinus ugandæ van Someren, Bull. B. O. C. xxxv. p. 125 (1915) [Uganda Forest], is at most a subspecies of *T. fulvescens* (Cassin). The presence of grey shaft-streaks or stripes on the feathers of the throat is a somewhat uncertain character; though found on most Cameroon birds, it is indistinct or absent on individuals from northern Angola and the Gold Coast.

Cossypha verticalis melanonota (Cab.).

It seems doubtful if *Cossypha melanonota* (Cab.) is really separable from *C. verticalis* Hartl., many of the former collected by Mr. Bates having the back greyish-black, not deep black. He obtained examples of both forms, irrespective of sex or season. Sharpe arrived at practically a similar conclusion (*cf.* 'Ibis,' 1908, p. 124).

Saxicola salax (Verr.).

Mr. Bates has sent several examples, both male and female, of this species from Akonolinga, Nyong River, eastern Cameroon. The average wing-measurement of six males is 68 mm.

The average wing-measurement of thirty-four specimens of *Saxicola salax* from Kilimanjaro, Lake George, Ruwenzori, Uganda, Kikuyu Ravine, Kenia, and Lake Naivasha is 71 mm.

The average of twelve male specimens from the Peak of Cameroon and Fernando Po is 73·5 mm. These represent the slightly larger race named *Pratincola pallidigula* Reichenow.

Mr. Bannerman, 'Ibis,' 1915, p. 498, has kept up this name, and has given certain wing-measurements in support, but from carefully taken wing-measurements we find the average is 73·5 mm. in twelve male specimens from the Peak of Cameroon and Fernando Po.

Xenocichla leucolæma Sharpe.

Xenocichla leucolæma Sharpe, Bull. B. O. C. xiii. p. 10 (1902); Ogilvie-Grant, Tr. Zool. Soc. xix. p. 383 (1910).

Phyllastrephus ugandæ Reichw. Orn. Monatsb. xv. p. 200 (1907) [Entebbe].

Since the notes in the Ruwenzori Report were published in 1910, the British Museum has received, through the kindness of Mr. L. M. Seth-Smith, a female example of this species from Mpumu, Uganda. In this bird the wing, which has been injured by shot, measures at least 76 mm. (= 3 inches), whereas in the type of *X. albigularis* Sharpe, from Fantee, the wing measures 68 mm. (=2·7 inches). That the former species is synonymous with the latter still requires confirmation.

Another male example was procured at Bitye, River Ja, on the 29th of August, 1911; the first sent by Mr. Bates was also a male shot in the same locality on the 31st of December, 1905.

I have examined the series in the Tring Museum, but they do not throw any further light on the matter.

P. ugandæ Reichw., from Entebbe, is undoubtedly the same as *X. leucolæma* Sharpe, from Toro.

Xenocichla scandens orientalis Hartl.

Xenocichla orientalis Hartl. J. f. O. 1883, p. 425 [Tamaja, near Tingasi (*Emin*)].

Phyllastrephus scandens orientalis Reichw. Vög. Afr. iii. p. 398 (1904).

Mr. Bates has sent several examples of this species, which ranges from Tingasi and the Welle River, in the north-western portion of the Belgian Congo, to the Shari River and the Ubangi River district south of Lake Chad; thence it is found southward to Cameroon.

I have examined the type-specimen of *X. orientalis* Hartlaub which is in the Tring Museum. It is a female with a wing-measurement of 94 mm.

The range of *X. s. scandens* extends from Senegambia to the Niger.

From *X. s. scandens* the present form is easily recognised by its dark grey head, dark greyish-olive back, and nearly white breast and belly, faintly streaked with very pale yellow.

The wing-measurements are as follows:—

X. s. scandens.		*X. s. orientalis.*	
♂. Wing......	102–112	♂. Wing	95–105
♀. ,, ...	101 & 104	♀. ,, ...	93–100

Alseonax epulatus (Cassin).

Butalis epulatus Cassin, Pr. Ac. Philad. 1855, p. 326, et 1857, p. 35 [Moonda River, Gaboon].

Alseonax epulatus Sharpe, Cat. Birds B. M. iv. p. 131 (1879).

Alseonax flavipes Bates, Ibis, 1911, p. 522.

There can be no doubt that *A. flavipes* Bates is founded on adult examples of *A. epulatus* Cassin. In younger birds the legs are brown, while in adults they are yellow. This is proved by specimens collected by the Ruwenzori Expedition in the Semliki Valley, and also by birds from Cameroon.

There are two typical examples of *A. epulatus* in the British Museum procured by Du Chaillu on the Muni River, Gaboon. The type was described from the Moonda River a few miles farther south. I have examined examples from Cameroon, Spanish Guinea, Gaboon, Libokwa and Bambili, Welle River, and Fort Beni, Semliki Valley.

Alseonax fantisiensis Sharpe.

Alseonax fantisiensis Sharpe, Cat. Birds B. M. iv. p. 131 (1879) [Fantee: *A. Swanzy*. Type in the British Museum.]

The paler grey species seems to occur together with the dark grey *A. epulatus* over a great part of its range.

Hab. I have examined specimens from the Gold Coast, Cameroon, Gaboon, and Fort Beni in the Semliki Valley.

Alseonax comitatus (Cassin).

Butalis comitatus Cassin, Pr. Ac. Philad. 1857, p. 35 [Muni River, Gaboon].

Alseonax comitatus Ogilvie-Grant, Tr. Zool. Soc. xix. p. 392 (1910) [East Mpanga Forest, Fort Portal, and Semliki Valley].

Pedilorhynchus comitatus Reichenow, Vög. Afr. ii. p. 461 (1903).

Pedilorhynchus stuhlmanni Reichenow, t. c. p. 460.

Pedilorhynchus stuhlmanni camerunensis Reichenow, t. c. p. 461.

Pedilorhynchus camerunensis Sharpe, Ibis, 1907, p. 447.

Alseonax ituriensis Reichenow, Orn. Monatsb. xvi. p. 191 (1908) [Avakubi, Ituri River].

Mr. Bates collected an adult pair, as well as immature and young examples, on the River Ja, Cameroon.

Three specimens of this species were procured by Alexander at Gudima, on the Upper Welle River, about 280 kilometres to the north-east of Avakubi on the Ituri River. There are also two specimens collected by the Ruwenzori Expedition, one in the Mpanga Forest, Fort Portal, and the other at Fort Beni, in the Semliki Valley.

The wing-measurements are: ♂ 66–69 mm., ♀ 63–67 mm.

Hab. Cameroon and Gaboon eastwards to Uganda, the Ituri River, and Upper Welle River.

Dr. Reichenow has separated this species from *Alseonax* under the new generic name *Pedilorhynchus,* on account of its stouter bill and the 2nd primary quill being shorter than the 8th.

In *A. comitatus* the 2nd quill is slightly shorter than the 8th. In *A. tessmanni* the difference is perhaps rather more marked.

In *A. adusta*, the type of *Alseonax*, the 2nd quill is somewhat longer than the 8th, and the same difference is found in *A. epulatus* and *A. fantisiensis.*

I do not, however, consider that this slight difference in the shape of the wing is sufficient reason for recognising *Pedilorhynchus* as a distinct genus.

Alseonax tessmanni (Reichenow).

Muscicapa modesta Sharpe (nec Hartlaub), in A. F. Mockler-Ferryman, 'Up the Niger,' App. vi. p. 310 (1892) [Shonga]; Alexander, Ibis, 1902, p. 329 [Prahsu and Fumsu, Gold Coast].

Pedilorhynchus tessmanni Reichenow, Orn. Monatsb. xv. p. 147 (1907) [Rio Benito, Spanish Guinea].

Pedilorhynchus brevirostris Bates, Bull. B. O. C. xxv. p. 28 (1909) [Assobam, Bumba River, Cameroon. Type in the British Museum].

The first person to send an example of this species to England was Capt. A. F. Mockler-Ferryman, who met with it in 1890 at Shonga in Northern Nigeria. The bird was incorrectly identified by Sharpe as *Muscicapa modesta* Hartlaub. Alexander next procured three specimens at Prahsu and Fumsu, on the Gold Coast, in 1900, which, following Sharpe, were also referred to *M. modesta.* As pointed out by

Mr. Bates in his description of *Pedilorhynchus brevirostris*, this is a larger bird than *Alseonax comitatus* (Cassin). The wing measures : 2 ♂ 75 mm. ; 2 ♀ 72 & 74 mm.

Hab. Gold Coast and Northern Nigeria southwards to Cameroon and Spanish Guinea.

Alseonax olivascens (Cassin).

Parisoma olivascens Cassin, Pr. Ac. Philad. 1859, p. 52 [Camma River, French Congo].

Lioptilus olivascens Sharpe, Hand-l. iii. p. 239 (1901).

Apatema olivascens Reichenow, Vög. Afr. iii. p. 523 (1905).

Mr. Bates procured three adult females and an immature male from Efulen, Cameroon.

I have examined specimens from Fantee, Gold Coast (*Ussher*) ; typical examples from the Camma River, French Congo (*Du Chaillu*) ; Assobam, Bumba River, and Bitye, River Ja, Cameroon (*G. L. Bates*).

Muscicapa cærulescens (Hartlaub).

Butalis cærulescens Hartlaub, Ibis, 1865, p. 268 [Natal, *T. Ayres*. Type in the British Museum.]

Muscicapa cærulescens Sharpe, Cat. Birds B. M. iv. p. 154 (1879).

This species may be recognised from the allied African Grey Flycatchers by having the base of the lower mandible whitish, a white band from the nostril to the eye, and a white line of plumes above and below the eye, the inner secondary quills margined with white, and the primaries narrowly edged externally with whitish. The general colour above is rather pale grey ; the throat white, the sides being rarely tinged with greyish ; the breast and flanks pale grey, and the belly and under tail-coverts white.

From *M. c. cinerea* it is distinguished by its larger size and longer tail. The wing-measurements are : ♂ 78–84 mm. ; ♀ 77–83 mm. Tail ♂ 60–66 mm. ; ♀ 59–64 mm. Specimens procured by A. S. Neave in Northern Rhodesia and the Katanga district are rather larger than any of the rest of the series.

Hab. I have examined examples from Natal (typical). Portuguese East Africa, Rhodesia, and Katanga, northwards to Ankole and British East Africa; also *via* the Zambesi to Damaraland, Benguela, as far north as Canhoça in the southern part of the Loanda district of Angola, where it meets with the following form ***M. c. cinerea.***

Muscicapa cærulescens cinerea (Cassin).

Eopsaltria cinerea Cassin, Pr. Ac. Philad. 1856, p. 253 [Moonda River, Gaboon: *Du Chaillu*].

? *Muscicapa modesta* Hartl. Orn. W. Afr. p. 96 (1857) [Gaboon]; Bocage, Journ. Lisb. ii. p. 43 (1870) [Mossamedes].

Hypodes cinerea Cassin, Proc. Ac. Philad. 1859, p. 52 [same type as above].

Muscicapa cassini Heine, J. f. O. 1859, p. 428 [founded on *Muscicapa* ——? Cassin, Pr. Ac. Philad. 1859, p. 51, Camma River, French Congo].

Muscicapa cinerascens Sharpe, Cat. Birds B. M. iv. p. 155 (1899) [Fantee: *Ussher*].

Muscicapa brevicauda Ogilvie-Grant, Bull. B. O. C. xix. p. 107 (1907); Ibis, 1908, p. 308 [Upper Congo].

The British Museum contains typical examples of ***E. cinerea*** Cassin, collected by Du Chaillu on the Moonda River, Gaboon. These birds agree perfectly with Cassin's description, as also with the type-specimens of ***M. cinerascens*** Sharpe and ***M. brevicauda*** Ogilvie-Grant.

Mr. Witmer Stone ('Auk,' 1914, p. 255) asserts that the present subspecies, *M. c. cinerea* Cassin, is synonymous with *M. lugens* Hartlaub, but this is an error, for the type-specimen of the latter species is in the British Museum, and is a perfectly distinct form, with no white lines of plumes above and below the eye, and without white edges to the primary quills. For remarks on this matter, see Stone, Pr. Ac. Philad. 1889, p. 147; and Stone, 'Auk,' 1914, p. 255.

M. c. cinerea is a rather smaller more northern and western representative form of *M. cærulescens* with a proportionately shorter tail.

Dr. Reichenow has united *M. c. cinerea* (=*M. cinerascens* Sharpe) with *M. cærulescens* Hartl., but the former is easily recognised by its proportionately shorter tail, and by other differences.

Wing: ♂ 70–75 mm.; ♀ 68–71 mm.

Birds from N'Dalla Tando, in the northern part of the Loando district of Angola, are somewhat intermediate, having the tail relatively slightly longer than in typical *M. c. cinerea* (tail, 2 ♂ 56, 54 mm. and 2 ♀ 52, 51 mm., as compared with ♂ 50–53 mm. and ♀ 48–51 mm.), but must be referred to *M. c. cinerea.*

Hab. I have examined specimens from the following localities:—Gold Coast, southwards through Cameroon to N'Dalla Tando, northern Angola; eastwards to the Welle River, Upper Congo, and Uganda (Entebbe and Mpumu).

The two forms seem to meet in central Angola.

Another form closely allied to *M. c. cinerea*, if not identical with it, is *Muscicapa modesta* Hartlaub [Orn. W. Afr. p. 96 (1857) Gaboon].

The bird described as *M. modesta* by Sharpe [Cat. Birds B. M. iv. p. 156 (1879)] from the "River Danger, Gaboon. Henry Ansell, Esq. [P.]," is unquestionably an example, in poor condition, of *Fraseria cinerascens* Hartlaub [*cf.* Sharpe, Cat. Birds B. M. iii. p. 304 (1877)]. Part of the plumage of this specimen is missing, but all the characters essential for certain identification are still present.

Dr. Reichenow [Vög. Afr. ii. p. 453 (1903)] copied Sharpe's description of his supposed *M. modesta*, but noted that it differed from the original description given by Hartlaub in important points.

Sharpe subsequently identified a specimen of *Alseonax tessmanni* Reichenow with this species.

Muscicapa lugens (Hartlaub).

Butalis lugens Hartlaub, P. Z. S. 1860, p. 110 [Bembe, Angola: *J. J. Monteiro.* Type in the British Museum].

Muscicapa lugens Sharpe, Cat. Birds B. M. iv. p. 155 (1879).

Alseonax melanoptera Sharpe, Bull. B. O. C. xvi. p. 89 (1906) [Toro: *F. J. Jackson.* Type in the British Museum].

This species is easily recognised from *M. c. cinerea*, which occurs in the same locality, by having only a trace of white between the base of the bill and the eye, the plumes surrounding the eye grey; middle of the throat, middle of the belly, and under tail-coverts white; the rest of the plumage rather dark grey; primary quills black, not edged with white; the bill black, including the lower mandible, which is not whitish or pale towards the base in dry skins.

The wing measures: ♂ 70–73 mm.; ♀ 68–72 mm.

Hab. I have examined specimens from the following localities:—Angola (typical), Gaboon, Cameroon, Gold Coast, Nigeria, Ubangi and Welle Rivers, and Toro, Uganda.

Muscicapa griseigularis (Jackson).

Alseonax griseigularis Jackson, Bull. B. O. C. xix. p. 19 (1906) [Toro. Type in the British Museum].

Parisoma holospodium Bates, Bull. B. O. C. xxv. p. 27 (1909) [Bitye, River Ja, Cameroon. Type in the British Museum].

Muscicapa ansorgei Hartert, Bull. B. O. C. xxv. p. 95 (1910) [Ogowe River, Gaboon: *W. J. Ansorge*].

This is a small grey-throated species, with the body rather dark grey, and only the middle of the belly inclining to whitish, and the outer webs of the quills edged with greyish-white. The bill is black with the basal part of the lower mandible pale grey or pale blue.

The wing measures: 6 ♂ 61–65 mm.; 5 ♀ 59–61 mm.

Hab. Specimens have been examined from Uganda and Cameroon. It also occurs in Gaboon.

Muscicapa toruensis Hartert.

Muscicapa toruensis Hartert, Nov. Zool. vii. p. 37 (1900) [Toro]; Ogilvie-Grant, Tr. Zool. Soc. xix. p. 393 (1910) [East Ruwenzori].

This form is most nearly allied to *M. griseigularis* (Jackson), but is much larger and of a paler grey, especially on the underparts. The throat is uniform grey like the breast, while the rest of the underparts is also grey, but a trifle paler, and usually inclining to whitish towards the middle of the belly. There is a ring of paler grey plumes surrounding the eye, and the quills are margined on the outer edge with dull grey. Bill black, basal part pale bluish.

The wing measures: 5 ♂ 80–84 mm.; 2 ♀ 79, 80 mm.

Hab. Toro, Uganda, and the eastern slopes of Ruwenzori.

Parisoma plumbeum (Hartl.).

Though placed in a different genus from *Muscicapa*, this species closely resembles *Muscicapa* in generic characters, though the nasal bristles are more slender; the under tail-coverts are buff, in slight contrast with the belly, and the wing is perhaps rather longer in proportion to the length of the tail. In males of *Parisoma plumbeum* the wing measures about 68–74 mm. and the tail 59–67 mm., while in *Muscicapa cærulescens* the wing is 78–83 mm. and the tail 63–65 mm. In both birds there is a whitish loral streak and a line of white plumes above and below the eye, the inner secondaries are edged with white, and the primaries narrowly margined with the same on the outer web. The shape of the wing is the same in both birds, the 2nd primary being rather longer than the 8th, and the 4th slightly the longest.

P. plumbeum is, of course, easily recognised by having the outer pair of tail-feathers mostly white, the 5th pair partially so, and the 4th (sometimes also the 3rd) pair tipped with white.

Chloropeta batesi Sharpe.

Chloropeta batesi Sharpe, Ibis, 1905, p. 468.

The species is not, as stated by Sharpe in his original description, very closely allied to *C. kenya* Sharpe, which has the crown dull olive-yellow like the back. In *C. batesi* the crown is darker than the back and forms a distinct cap, being washed with brownish black. *C. batesi* is very closely allied to *C. massaica* Fischer & Reichw., but the latter has the mantle and back yellower and of a lighter tint.

Chloropeta schubotzi Reichenow [Orn. Monatsb. xvi. p. 119 (1908)], from Lugegu Forest, East Africa, is very closely allied to *C. kenya* Sharpe, which occurs on Mt. Kenia, Kikuyu, and eastern Ruwenzori [*cf.* Ogilvie-Grant, Tr. Zool. Soc. xix. p. 395 (1910)] but has rather darker olive upper parts.

Hyliota violacea Verr.

Two female examples of *Hyliota* procured at Bitye, River Ja, in May and September, appear to be referable to *H. violacea* Verr., of which the female, according to Dr. Reichenow [Vög. Afr. ii. p. 474 (1903)], is unknown. The male has the three or four innermost greater secondary coverts white, or mostly white, forming a distinct patch; in the female these feathers are black with white at the base, and narrowly bordered with white on the terminal portion of the outer web. Moreover, in both these females the entire underparts from the chin to the belly are rufous buff. A third female specimen, procured by Mr. Bates in June 1906, is in all respects similar to the above.

Alethe poliocephala (Bonap.).

Trichophorus poliocephalus (Temminck MS.) Bonap. Consp. Av. i. p. 262 (1850).

To the synonymy given in Reichw. Vög. Afr. iii. p. 746 (1905) should be added :

Alethe moori Alexander, Bull. B. O. C. xiii. p. 37 (1902) [Bakaki, Fernando Po].

An adult male killed on the 4th of April, 1914, has very little black on the chin; the white of the throat extends nearly to the angle between the rami of the lower mandible.

Fraseria cinerascens Hartl.

An example of this species was described by Sharpe as *Muscicapa modesta* Hartlaub (*cf.* p. 87).

The young bird of this species is distinguished from the young of *F. ocreata* (Strickl.), also procured by Mr. Bates, in having the breast mottled and spotted with dusky and pale buff. In *F. ocreata* it is mostly white.

VII.—*Obituary.*

JOHN CYRIL CROWLEY.

We have again to deplore the loss of another of our members on the field of battle, this time in the swamps of Mesopotamia.

Captain Crowley was born at Croydon on December 2, 1877, and was the second son of Alexander Crowley, and the great-nephew of the late Philip Crowley, whose valuable collection of eggs is now one of the treasures of the Natural History Museum. He was educated at Wimborne and at Keble College, Oxford, where he took his degree in 1899. He then spent nearly a year at Oxford House, Bethnal Green, where he greatly interested himself in the boys' clubs and kindred matters. Later on he joined his father and brother in business, and became a most efficient member of their firm. From childhood he manifested great interest in animal life and specially in that of birds, following in the steps of his great-uncle Philip Crowley. He devoted all his holidays to the photography of birds and nests, chiefly in the Hebrides and Perthshire, and after many trials he obtained excellent photographs of the Great Northern Diver, Grey-Lag Goose and Capercaillie, the last-named on the estate of, and with the permission of, the Marquis of Breadalbane, who kindly gave him every facility. He contributed articles illustrated by his photographs to 'Country Life' and the 'Badminton Magazine,' and became a Member of the Union in 1903. He was gazetted to the 4th Battalion (Territorial) of the Queen's (Royal West Surrey) Regiment some 12 or 13 years ago, and was given command of the Machine Gun Section, to which he devoted much time, passing examinations at Hythe and at Vickers & Maxim's. He was in camp in July 1914 when the regiment was mobilized at the outbreak of the War, and went with them to India in October. He was very anxious to see active service, and when officers were required for Mesopotamia he volunteered at once and proceeded there in July 1916. He was given the command of a Machine Gun Battery, and was shortly afterwards killed in action at Nasiriyeh on September 11, 1916, when covering an infantry retreat. He was buried the same evening in the cemetery at that place. His Colonel writes:—"It is a great blow to us all, and to the Machine Gun Coy. to lose such a good officer. There was nothing he did not know about his work, and his cheery manner infected those around him and the men would do anything for him."

SAMUEL GILBERT SCOTT.

We regret to hear that Canon Scott, who was elected a Member of the Union in 1907, died suddenly on November 5 last. Born at Brighton on May 20, 1847, Scott was educated at Brighton College and at Magdalen College, Oxford, where he secured a demyship. Entering the Church in 1873 he held several preferments and was Rector of Havant in Hampshire from 1892 to 1915. He was also Rural Dean, 1900 to 1915, and appointed Hon. Canon of Winchester in 1905. His activities in the ecclesiastical world were very considerable, and he was very well known and highly respected in the south of Hampshire. He was interested in wild-life of every sort, and made frequent excursions to Scotland for fishing and for observing birds, though, so far as we are aware, he never published in ornithology.

RALPH WILLIAM FRANKLAND PAYNE-GALLWEY.

Sir Ralph Payne-Gallwey of Thirkleby Park, Thirsk, who was a Member of the Union from 1885 to 1898, died on November 24 last at the age of sixty-eight. Born in 1848 the eldest son of the second Baronet, whom he succeeded in 1881, Sir Ralph Payne-Gallwey was educated at Eton. He was a very famous wild-fowler, and it was on his knowledge of the habits and haunts of wild-fowl, gained through many years shooting and trapping, that his claim to the title of ornithologist chiefly rests. He was a considerable author not only on sporting subjects but also on antiquarian matters. His first two works, "The Fowler in Ireland 1882" and "The book of Duck Decoys 1886," are well known to all sportsmen, and were noticed in 'The Ibis' at the time of their appearance. The latter volume especially contains much out of the way information about the habits and occurrence of British Ducks. His other best-known work is the "Letters to Young Shooters" in three volumes, 1891–96, the third volume of which contains a useful description of all the wild-fowl met with in Great Britain. Another work published only in 1913, "High Pheasants in Theory and in Practice," is of more interest to the pure sportsman. Sir Ralph earned the gratitude of those interested in the former state of our avifauna by having the ancient sign of the Dotterel Inn, which stands on the Yorkshire wolds, restored, after it had been sadly ill-used by a local artist who had repaired it.

JOACHIM CHARLES HARTERT.

The sympathy of all the Members of the Union will go out to Dr. Hartert, whose only son fell in action on October 28 of last year. Joachim Charles Hartert was born November 2, 1893. He was educated at Berkhamsted School and at Wadham College, Oxford, where he graduated B.A. in 1914. A member of the O. T. C., he obtained a commission in the East Yorkshire Regiment on the outbreak of the War. He had been at the front for over a year and was slightly wounded in the early days of the great advance. He was a frequent guest at the dinners and meetings of the B. O. C. and was thus well-known to many of us. The 'Oxford Sacrifice' of November 10 writes:—"Strong, sensible, and hard working, he had kept the virtues of his German descent while he was himself a loyal young Englishman of the best type."

VIII.—*Notices of recent Ornithological Publications.*

Andrews on a New Fossil Bird.

[Note on the Sternum of a large Carinate Bird from the (?) Eocene of Southern Nigeria. By C. W. Andrews, D.Sc., etc. Proc. Zool. Soc. 1916, pp. 519–524, 4 figs.]

The British Museum has recently received from Southern Nigeria an interesting collection of fossils obtained by Mr. J. Eaglesome in a railway-cutting on the new railway from Port Harcourt to the interior. The beds appear to be of Eocene age, but the exact horizon is not yet definitely settled. In the present paper Dr. Andrews describes the anterior half of a sternum which appears to have belonged to a very large bird, twice the size of an Albatross, and undoubtedly a powerful flier; it was probably a good swimmer and diver as well. The characters point to a bird in most respects intermediate between certain of the Tubinares and Steganopodes, but obviously generically distinct from all recent forms. Dr. Andrews proposes for it the name *Gigantornis eaglesomei*, gen. et sp. nov.

Bryant on the Roadrunner.

[Habits and Food of the Roadrunner in California. By Harold C. Bryant. Univ. Cal. Publ., Zool. vol. xvii. 1916, pp. 1–4, 4 pls., 2 text-figs.]

There are few more interesting and curious types than the Roadrunner of western North America (*Geococcyx californianus*). A terrestrial Cuckoo with the look of a small hen Pheasant, which runs more often than it flies and which builds its own nest, it has suffered a good deal of persecution of late years owing to its supposed partiality for nestling Quails.

The present paper contains the results of a careful examination of the contents of the stomachs of some eighty individuals. From this it appears that it is omnivorous, though ground-beetles and grasshoppers form the largest percentages of the food-matter examined. The vegetable component, about 10 per cent., consisted almost entirely of the seeds of a sumac (*Rhus*). Lizards, and occasionally a young bird or mammal, are devoured and swallowed whole. No evidence was found of the destruction of Quails, and on the whole the evidence showed that it should be certainly protected and preserved. An interesting summary of its nesting and other habits is also given.

Cory on new South American Birds.

[Descriptions of apparently new South American birds, with notes on some little-known species. By Charles B Cory. Field Mus. Publ. Orn. vol. i. 1916, pp. 337–346.]

Twenty-six new forms are described in this paper. *Cercomacra huallagæ*, from Peru, is the only new species, the others, all new subspecies, are assigned to the genera *Conopophaga*, *Dysithamnus*, *Myrmeciza*, *Furnarius*, *Schizœaca*, *Synallaxis*, *Liptornis*, *Xiphocolaptes*, *Picolaptes*, *Tænioptera*. *Muscisaxicola*, *Todirostrum*, *Myiodynastes*, *Myiarchus*, *Pachyrhamphus*, *Polioptila*, *Cistothorus*, *Troglodytes*, *Planesticus*, *Anthus*, *Saltator*, *Coryphospingus*, *Tangara*, and *Schistochlamys*.

Dabbene on the Coots and Grebes of the Argentine.

[Notas biológicas sobre gallaretas y macás. Por Roberto Dabbene. An. Mus. Nac. Hist. Nat. Buenos Aires, xxviii. 1916, pp. 183–192, pls. i.–v.]

This paper contains the observations made by Señores Manuel and Rodriguez, well-known collectors in the Argentine, on the nesting-habits and life-histories of two Coots, *Fulica armillata* and *F. rufifrons*, and two Grebes, *Podiceps americanus* and *Podilymbus podiceps*. These observations were made in October and November, 1915, on the estancia "Charles," in the Province of Buenos Aires. The paper is illustrated with good photographs of the nests of all four species, and of the young birds in various stages of development, as well as by a coloured sketch of the heads of the two Coots when first hatched, showing the curious and complicated colour markings of the bills.

Evans on British Birds.

[The Birds of Britain, their distribution and habits. By A. H. Evans, M.A., pp. xii + 275, 94 figs. Cambridge (University Press), 1916. 8vo.]

This little work, by the late co-editor of 'The Ibis,' is intended primarily for the use of schools, though it will doubtless be found useful by other people who require a short and concise hand-book.

The Introduction contains a brief discussion of the general characters of the class Aves, and of such subjects as moult, flight, and migration. Then follows the systematic portion of the work. Each family or subfamily is considered in turn and a paragraph or so devoted to each species. Only those birds are treated of which may be called regular inhabitants of the British Isles. The occasional and rarer visitors are relegated to a list at the end of the work.

The classification is the same as that of Howard Saunders's 'Manual,' and the nomenclature almost that of the new edition of the B. O. U. list. In a work of this sort we feel that it would have been more useful if more space had been given to clearly pointing out the diagnostic characters of the families and genera. If the work is intended for educational purposes, it is most necessary to help the student to identify any bird he may come across, and it appears to us that the only sure method of doing this is by giving clear definitions of structural and other characters, confining them, so far as possible, to those which can be easily recognised. A series of illustrations of bills, legs, and wings—such, for instance, as are to be found in Ridgway's great work on North-American birds—would have been far more useful than the photographs with which Mr. Evans has illustrated his work. These vary very much in quality, many of them having obviously suffered in the reproduction, and we can hardly find much help in the recognition of the species in the cases of the Redstart and the Robin. Others, however, such as the Curlew, are highly characteristic, and reflect great credit on the artists.

Geikie on the Birds of Shakespeare.

[The Birds of Shakespeare. By Sir Archibald Geikie, O.M., K.C.B., F.R.S. Pp. 120. Glasgow (Maclehose & Sons), 1916. Post 8vo.]

The theme selected by Sir Archibald Geikie for a Presidential Address to the members of the Haslemere Natural History Society is a very attractive one, and will doubtless be acceptable to many readers of this Journal. But to those who have already devoted any attention to the subject, we fear it will prove somewhat disappointing. For although this little volume extends to 120 pages, we do not find that it contains much criticism. In fact, the author has done little more than string together a limited number of quotations from the plays of Shakespeare, leaving his readers to draw their own conclusions. This is to be regretted, for we feel sure that with his extensive knowledge of natural history, as manifested in so many of his own publications, the accomplished ex-President of the Royal Society could have written a much better book on Shakespeare's birds if he had been able to devote more time to the collection of materials.

It is not a little curious, as admitted in his Preface, that Sir Archibald Geikie had not seen, until too late to be of any use to him, a much more extended commentary on the subject which was reviewed in this Journal so long ago as 1872 (p. 185), wherein he might have found much to his purpose. But apart from this, we should have expected to find some obvious criticisms which have escaped him. To mention only one. At page 89 he quotes the scene in *Henry IV.*, in which the two carriers, on arrival at the inn in Rochester, complain that the Turkeys in their panniers are starved. Sir Archibald Geikie has overlooked the anachronism, for the Turkey was unknown in England until the later reign of Henry VIII.

On only one other point have we space to criticize, and this, perhaps, is of more importance, since it will serve to correct a wide-spread error which we are accustomed to see repeated from time to time in the daily press. On page 41, with the object of showing that the sport of hawking in this country is not yet extinct, Sir Archibald Geikie remarks: "There is still among our King's Court Officials a Hereditary Grand Falconer, the office being held in the family of the Duke of St. Albans." This would have been true a quarter of a century ago, but it is not the case now. The royal pension was commuted in 1890, when the office was abolished, and the last holder of it died in May 1898. The sport, however, is still carried on, without State aid, by many enthusiastic falconers.—J. E. H.

Grinnell on a new Ruffled Grouse.

[A new Ruffled Grouse from the Yukon Valley. By Joseph Grinnell. Condor, xviii. 1916, pp. 166, 167.]

The Ruffled Grouse of Yukon Territory and of Alaska is found by Grinnell to differ from that of Alberta and other parts of western North America in its larger and paler coloration, and is here described as a new subspecies under the name *Bonasa umbellus yukonensis*.

Gurney's Ornithological Report for Norfolk.

[Ornithological Report for Norfolk (1915). By J. H. Gurney, F.Z.S. Zoologist, 1916, pp. 201–209, 260–266.]

Mr. Gurney has less to chronicle than usual in his annual report on matters of ornithological interest in Norfolk for 1915. This is perhaps owing to so many of the observers having gone to the front, and also perhaps to many military restrictions of observation, especially along the coast.

It is sad to read that the Spoonbills did not return last year to Breydon, nor did the Cormorants again nest in Lord Hastings's lake.

Mr. Gurney comments on the curious differences noticed between the birds observed on migration in spring and autumn. Thrushes, Blackbirds, Redwings, Starlings, Chaffinches, and Linnets are seen in enormous flocks in autumn, but never—at any rate, in such numbers—in spring. Perhaps they return by some other route; possibly they pass over Norfolk at night, and are not observed.

A large number of Rough-legged Buzzards passed over Norfolk and Suffolk in the autumn of 1915; at least twelve were trapped or shot. Other rarities were few in number. A White-eyed Duck was seen on the Broads in April, a Stork by Mr. Vincent in May, and a Black-breasted Dipper was received by Mr. Sanders from Potter Heigham.

Gyldenstolpe on the Birds of Siam.

[Zoological Results of the Swedish Zoological Expeditions to Siam, 1911–1912 and 1914–1915. IV.—Birds, ii. By Nils Gyldenstolpe. Kungl. Svenska Vetens.-akad. Handl. vol. lvi. no. 2, 1916, pp. 1-160; map, 4 pls., 5 text-figs.]

There has been a good deal of activity during the last few years in regard to the ornithology of Siam, and many articles have been published in the recently established Journal of the Siam Natural History Society. The results of Count Gyldenstolpe's first journey have already been noticed in our pages ('Ibis,' 1914, p. 144). In his second journey he visited the northern extremity of Siam, bordering on the Shan States and the southern portion of the country due east of Burmese Tenasserim, and he appears to have obtained a fine booty.

The number of species mentioned in his list, which is accompanied by field-notes and critical remarks on taxonomy, is 353, and a good many of these are new to the Siamese fauna. The new forms described are *Lanius hypoleucus siamensis*, *Turdus aureus angustirostris*, *Mixornis gularis minor*, *Alseonax siamensis*, *Gerygone griseus*, *Picus vittatus eisenhoferi*, *Picus canus hessei*, *Brachylophus chlorolophoides*, *Sphenocercus pseudo-crocopus*. With one exception the new species have already been described in the Ornith. Monatsberichte for 1916. Among the illustrations will be found a sketch-map showing the route taken and the localities where collecting was done, two coloured plates illustrating the more important new forms discovered, and two plates of photographs of types of scenery encountered. The introduction contains a bibliography and an account of his wanderings, and some reflections on the zoo-geographical relations and affinities of Siam. We should like to congratulate Count Gyldenstolpe on a fine piece of zoological exploration carried out in the field with marked energy and success, and reported on with great thoroughness and accuracy.

Hartert and Lord Rothschild on various subjects.

[On the forms of *Rhodinocichla rosea.* By Ernst Hartert. Nov. Zool. Tring, xxiii. 1916, p. 229.

What is the correct name of the Arabian Sea-Tern? Id. ibid. p. 288.

The alleged occurrence of *Arenaria melanocephala* (Vig.) in India. Id. ibid. pp. 291, 292.

On the European forms of *Phalacrocorax carbo.* Id. ibid. pp. 293–295.

More erroneous quotations and other errors. Id. ibid. pp. 295, 296.

On some forms of *Coracina* (*Graucalus* auct.) from the Solomon Islands. By Lord Rothschild and Ernst Hartert. Ibid. pp. 289–291.

A new *Monacha* from Rossel Island. Idd. ibid. p. 297.]

In the first of these notes the Rose-breasted Mocking Thrush of Venezuela is distinguished from that of Columbia. To the first-named is attached Hartlaub's name, given in 1849, and it stands as *Rhodinocicla rosea vulpina* (Hartl.). The latter remains *R. rosea rosea* (Less.).

In the second note the author shows that the name *Sterna albigena* usually applied to the Arabian Sea-Tern is a nomen nudum, and a new name is necessary for the species. *Sterna repressa*, nom. nov., is proposed.

The Black Turnstone (*Arenaria melanocephala*) is stated in the A. O. U. Check-list as "accidental in India." Dr. Hartert shows that the record on which the statement is based is, to say the least of it, an uncertain one. There is an example of that species in the Philadelphia Academy Museum from the collection of a Capt. Boys, who undoubtedly collected in India, but this particular bird is without any label, and that it came from India is pure conjecture.

In the fourth paper in the list Dr. Hartert proposes to recognise two races of the Cormorant in Europe—a larger form which generally nests in cliffs, found in the North Atlantic from Nova Scotia to the British Islands and eastwards to the Kola Peninsula, and which he regards as the typical race, *Phalacrocorax carbo carbo* (L.), and a smaller form, usually nesting in trees, found in central Europe west to Holland and the coasts of France and south to the Mediterranean. This he calls *P. c. subcormoranus* (Brehm). He seems uncertain whether this last-named form is found in the British Islands. This matter must be further investigated.

The last paper by Dr. Hartert alone deals with some errors, chiefly misprints, in the 25th volume of the 'Catalogue of Birds in the British Museum,' containing the Gulls and Terns, and written by Howard Saunders.

In the first of the two papers by Lord Rothschild and Dr. Hartert, *Coracina welchmani kulambangræ*, from Kulambangra, and *C. papuensis perpallida*, from Bougainville, both in the Solomon Islands, are described as new, and a critical list of the various forms of the latter species is given.

The second note contains a description of a new Flycatcher, *Monacha cinerascens rosselianus*, from Rossel Island, of the Louisiade Group east of New Guinea.

Mathews on the Birds of Australia.

[The Birds of Australia. By Gregory M. Mathews. Vol. v. pt. 3, pp. 249–352, pls. 255–266. London (Witherby), May 1916. 4to.]

This part, which concludes the fifth volume of the work, also concludes the families of the Owls. The author regrets that he is not able to give longer accounts of their life-histories, but may console himself with the reflection that the woodland species probably do not differ therein to any great degree, and that the main points are already made clear in his pages.

Attention is particularly drawn to certain very distinct characteristics of "*Ninox*" or "*Hieracoglaux*" *strenua*, which have caused Mr. Mathews to create for it the new genus *Berneyornis*, while he hopes that the anatomy will be examined by some expert. In connection with this species he sinks the subspecies *victoriæ*.

In our last notice we misunderstood the author's view with regard to the generic name *Strix* for the "White" or "Barn" Owls. He is by no means of the opinion that this should be conserved, but uses *Tyto* instead, rather than *Flammea*. Of the genus he gives a most comprehensive and instructive account, chiefly devoted to the nomenclature and consequent synonymy. He recognises three Australian species, *T. alba* (White Owl), *T. novæ hollandiæ* (Masked Owl), and *T. longimembris* (= *candida* Gould; Sooty Owl).

No subspecies of *T. alba* are given, though further material may show that such exist, as apart from individual variation: even *T. alexandræ* is suppressed. Those admitted by Hartert are, however, scheduled.

T. novæ-hollandiæ, on the other hand, which is also stated to be very variable, is differently treated, no fewer than nine subspecies being allowed, viz.:—*novæ-hollandiæ*, *castanops*, *kimberli*, *melvillensis*, *riordani*, *whitei*, *perplexa*, *mackayi*, and *galei*, while a peculiar phase (*dombraini*) is left doubtful. In the discussion of these forms Mr. Mathews strongly combats the views of Messrs. Rothschild and Hartert. *T. longimembris* is now deprived of the subspecies *georgiæ* and *walleri*, formerly proposed by the author.

After considerable hesitation *Megastrix* is still allowed to remain in the "Barn" Owl family, with subspecies *tenebricosa*, *magna*, and *multipunctata*; while the name *perconfusa* is allotted to a British New Guinea form, which the author refuses to identify with the Arfak bird (*arfaki*).

At the beginning of the present Part we find two pages which stood over from Part 3; the subspecies of *Rhabdoglaux* are there given as *rufa*, *queenslandica*, and *humeralis*. A supplement at the end of Part 4 consists of some notes on the life-histories of Raptorial birds by J. B. White and others, which had been overlooked. Plates are given of the first four subspecies mentioned under *Tyto novæ-hollandiæ*, and one in the case of other species.

Mearns on new African Birds.

[Descriptions of seven new Subspecies and one new Species of African Birds (Plantain-Eater, Courser, and Rail). By Edgar A Mearns, Smithsonian Miscell. Coll. vol. lxv. 1915, pp. 1-9.]

Of late years the United States National Museum has acquired considerable collections of African birds from the Roosevelt, Childs Frick, and Paul Rainey Expeditions, and Dr. Mearns now issues his thirteenth paper devoted to descriptions of the new forms found among them. It is to be hoped that a more complete account of these collections will appear before long. The forms described are as follows :—

Turacus hartlaubi medius, Mt. Kenia; *T. h. crissalis*, Mt. Mbololo, east of Kilimanjaro; *T. h. cærulescens*, Mt. Gargues, B. E. A.; *Corythæola cristata yalensis*, Yala River, B. E. A.; *Cursorius gallicus meruensis*, Meru River, B. E. A.; *C. temminckii jebelensis*, Lado Enclave; *Rhinoptilus africanus raffertyi*, Hawash River, Abyssinia, all new subspecies; and *Sarothrura loringi*, Mt. Kenia, new species.

Murphy and Harper on new Diving-Petrels.

[Two new Diving-Petrels. By Robert Cushman Murphy and Francis Harper. Bull. Amer. Mus. Nat. Hist. New York, xxxv. 1916, pp. 65-67.]

In this short paper the authors distinguish, by their smaller size, the Diving-Petrels of the Chatham Islands from those of New Zealand (whence came the type of the typical form), under the name *Pelecanoides urinatrix chathamensis*.

They also describe as a distinct species, chiefly on account of the shape of the bill, the Diving-Petrel of South Georgia under the name *Pelecanoides georgica*.

Murphy on the Teal of South Georgia.

[Anatidæ of South Georgia. By Robert Cushman Murphy. Auk, xxxiii. 1916, pp. 270-277, pl. xiv.]

This short paper, with a perhaps rather grandiloquent title, deals chiefly with the Georgian Teal; the only other member of the Anatidæ found in South Georgia is the

Magellanic Goose, introduced recently from the Falkland Islands, where it is in some danger of extermination. With regard to the Teal, Mr. Murphy is satisfied that its relationships are not with the other South-American species of the same genus, such as *Nettion flavirostre*, *N. oxypterum*, and *N. andinum*, but with the Duck known as *Dafila spinicauda*, widely distributed in South America, which it seems to resemble closely in markings and proportions, though it has sixteen rectrices, whereas the Pintail has only fourteen. But then, again, *Dafila acuta*, the type of the genus, has sixteen, so that the number of the rectrices of Ducks do not seem to count for much.

Mr. Murphy found nests and eggs of *Nettion georgianum*, and gives us some interesting field-notes, as well as a photograph of the birds at the nest. They only lay five eggs, a tribute to the severity of the struggle for existence in so remote and southerly a spot.

Noble on the Birds of Guadeloupe.

[The resident Birds of Guadeloupe. By G. K. Noble. Bull. Mus. Comp. Zool. Cambridge, Mass. lx. 1916, pp. 359–396.]

Mr. Noble was fortunate enough to be able to pay a three months' visit, in the summer of 1914, to the French West India Island of Guadeloupe, in the interest of the Museum of Comparative Zoology, during which time he mainly occupied himself with the resident land-birds, and he was fortunate enough to come across all the existing resident species. The birds dealt with number 46 in all, and in addition to the vernacular names and field-notes, there are valuable remarks on the taxonomy and relationships of many of the species.

In some respects Mr. Noble is conservative in his views. He believes that the numerous Antillean races of the Green Heron (*Butorides virescens*), recently described by Oberholser, cannot be maintained, but that all the Green Herons from Cuba to Grenada must be referred to one subspecies (*B. v. maculatus*). He also finds that *Cichlherminia coryi* Ridgway, is the adult of *C. herminieri* (Lafr.), the type of which, from Lafresnaye's collection, is now at Cambridge, Mass.

One of Mr. Noble's chief reasons for visiting Guadeloupe was to obtain some information about the Black-capped Petrel, known locally as the Diablotin (*Æstrelata hæsitata*), which formerly bred on that island, but is now believed to be extinct. An old negro, who formerly used to hunt the birds when they came to the mountains to breed, asserted that they had not been seen on the island since the great earthquake of 1847, and certainly Mr. Noble had no success in obtaining specimens. On returning to Cambridge, however, Mr. Noble learnt that there were two pairs in the collection of the Museum ; these had been collected by a well-known Guadeloupe naturalist named L'Herminier in 1842 for Lafresnaye in Paris. He found, as M. L' Herminier had previously stated, that these two pairs represented what were undoubtedly two distinct species, differing in size and in the shape and coloration of the nostril tubes. After much consideration and research, Mr. Noble has come to the conclusion that the larger of these two Dusky Petrels must be known as *Æstrelata diabolica* (Lafres.), and the smaller as *Æ. hæsitata* (Kuhl), and that they both formerly nested on the Soufrière of Guadeloupe, but at different elevations and at different seasons. The Diablotin is said to have nested also on the neighbouring island of Dominica, but of this there seems no authentic record. The British Museum contains only one example of the species, said to have been obtained at or near Hayti many years ago.

The Grassquit of Grenada, St. Vincent, and Barbados is found by Mr. Noble to be distinct from that occurring in Guadeloupe and the more northern Antilles, and is described as a new subspecies under the name of *Tiaris bicolor expectata*.

Poncy on the Bird-life of Geneva.

[Notes ornithologiques de Louis Albert Necker de Saussure (Allant de Mars 1803 à Octobre 1838). Communiquées par son Petit-Neveu

M. Henry Necker à Robert Poncy. Extr. from Bull. Soc. Zool. Genève, 1916, pp. 1–40.

Rapport de la Station ornithologique du Port de Genève et de ses environs 1915–1916. Par R. Poncy. Bull. Soc. Zool. Genève, 1916, pp. 167–189.]

In the first of these papers is printed, for the first time, the ornithological notes made between 1803 and 1838 by M. Necker de Saussure (a grandson of H. B. de Saussure, the well-known geologist), who was himself a man of general culture, as well as an ornithologist of considerable note, and author of a memoir on the birds of Geneva, published in 1823. The notes are arranged in chronological order for each month, and are chiefly of historical interest and deal with observations made in the neighbourhood of Geneva.

M. Poncy's own notes, arranged in a similar manner, deal with his daily observations chiefly on the water-birds of the Lake of Geneva between July 1915 and June 1916.

Shufeldt's recent papers.

[Osteology of *Palæornis*, with other Notes on the Genus. By R. W. Shufeldt. Trans. Roy. Soc. S. Africa, v. 1916, pp. 575–591, pls. xxxix–xli.]

[A Fossil Feather from Taubaté. Id. Auk, xxxiii. 1916, pp. 206–207.]

[The Significance of the Osteological Characters of the Chionides. Id. ibid. pp. 352–353.]

In the first of these papers Dr. Shufeldt gives us an account of the osteology of *Palæornis docilis*. The observations he has made lead him to believe that the position assigned by Sharpe to the Parrots of this and other closely-allied genera as forming a distinct subfamily of the family Psittacidæ is probably more correct than that suggested by Garrod. A coloured plate of the example on which the work was done, together with two plates of the osteology, illustrate the text.

The second note deals with a fossil feather from some deposits of unknown age in southern Brazil, but there is not sufficient evidence of affinity or character to do more than mention the fact of the existence of birds occurring in this particular formation.

The third title cited is in the form of a letter to the

'Auk' in which Dr. Shufeldt draws the attention of Dr. Lowe to a paper by himself in the American Naturalist for 1904, in which he placed the Sheathbills between the Waders and the Gulls, and which apparently escaped Dr. Lowe's attention when he wrote his paper on this group (see 'Ibis,' 1916, p. 122).

Swarth on the Arizona Screech Owls.

[The Sahuaro Screech Owl as a recognisable Race. By H. S. Swarth. Condor, xviii. 1916, pp. 163–165.]

In this short note Mr. Swarth defends the recognition of a Screech Owl (*Otus asio gilmani*), described by him some years ago, which has been denied recently by Mr. Ridgway in his 'Birds of Middle and North America' (part 6, 1914, p. 702, footnote). He has gone into the matter afresh with additional specimens to examine, and has come to the conclusion that two distinct subspecies exist in Arizona—*O. a. cineraceus* in the higher mountains of the upper Sonoran zone, and *O. a. gilmani* in the hot lower Sonoran valleys. The first inhabits oak-covered foot-hills and canyons, the second open plains, where it finds a congenial nesting-site in the giant cactus, so conspicuous a feature of that region.

Todd on the genus Dysithamnus.

[On *Dysithamnus mentalis* and its Allies. By W. E. Clyde Todd. Bull. Amer. Mus. N. H. New York, xxxv. 1916, pp. 533–560.]

Among the rather obscure members of the family of Ant-Thrushes confined to Central and South America, the species allied to *Dysithamnus mentalis* appear to hold a prominent place. They have been alternately lumped under one name and separated into a number of subspecific forms by various writers.

In the present article Mr. Clyde Todd gives the results of his examination of 276 specimens gathered from the principal museums in the United States. A key of the adult plumages is given, and a review of the various forms with synonymy and descriptions, and in some cases sketch-maps of their distribution. Three new forms are described for the first time, viz., *Dysithamnus mentalis æquatorialis, D. m. lateralis, D. extremus.*

Warren on Colorado Birds.

[Notes on the Birds of the Elk Mountain Region, Gunnison County, Colorado. By Edward R. Warren. Auk, xxxiii. 1916, pp. 292–317, 3 pls.

The Birds of Monument Valley Park, Colorado Springs, Colorado. By Edward R. Warren. Bird-lore for 1916.]

Mr. Warren is well known for the excellent work he has done in extending our knowledge of the vertebrate fauna of the State of Colorado, and the writer of this notice was greatly indebted to him for help when preparing his own account of the birds of that State. In the first of these two papers, Mr. Warren gives a list with ample field-notes of the birds inhabiting part of Gunnison County, which lies embedded in the main chain of the Rocky Mountains. Most of the country to which these notes refer is situated at an elevation of over 9000 feet, while many of the surrounding peaks reach an elevation of over 14,000 feet. The fauna therefore is essentially of a montane character, and the life-zones treated of are the Canadian, Hudsonian, and Arctic-Alpine. Among interesting birds noticed at length are the White-tailed Ptarmigan (*Lagopus leucurus*) and the two Rosy Finches (*Leucosticte tephrocotis* and *L. australis*).

In the second paper Mr. Warren gives a list of 103 species of birds observed by him in a beautiful park running along the western boundary of the town of Colorado Springs, and one of the many generous gifts to the town and State by the late Gen. Wm. J. Palmer. Down its centre runs the Monument Creek, and as it is well planted with trees and bushes, it forms a safe and convenient refuge for many species of birds. The educational value of such places is very great, and particularly in the United States, where the reckless destruction of bird-life has gone on so long unchecked, though now one is glad to see a very different spirit is gradually spreading among the great masses of the population.

White on the Exploration of Central Australia.

[Scientific Notes on an Expedition into the North-western Regions of South Australia. By S. A. White, M.B.O.U., and others. Trans. Roy. Soc. S. Australia, vol. xxxix. 1915, pp. 707–842, 2 maps and 19 plates (Birds, pp. 740–766).

In the Far North-West. An Expedition to the Musgrave and Everard Ranges. By Capt. S. A. White, M.B.O.U., pp. 1–200, many photographs and 2 maps. Adelaide, 1916. 8vo.]

In the months of June, July, and August, 1914, Capt. White, accompanied by Mr. J. P. Rogers, his hunter and taxidermist, took part in an exploring expedition to the Musgrave and Everard ranges, which lie in the north-west corner of South Australia, about 300 miles west of Oodnadalta, the terminus of the railway running northwards from Adelaide.

Large zoological and botanical collections were made, and these are all reported on, by various specialists, in the first of the publications mentioned.

The birds with which we are concerned are reported on by Capt. White himself. About a hundred species were either noticed or brought back, and the following new forms are described:—*Barnardius zonarius myrtæ*, *Smicrornis brevirostris mathewsi*, *Lewinornis rufiventris mandeæ,* while several others discovered on the expedition were previously described by the author or by Mr. Mathews. One of the most interesting finds of the expedition was the rediscovery of the Chestnut-breasted Whiteface (*Aphelocephala pectoralis*), a species described by Gould in 1871, of which the type and only known example had been lost.

A supplementary chapter to that on the birds has been written by Mr. A. M. Lea on the stomach-contents of the birds. From the examination of these, it appears that ants of various species form the staple food of the insectivorous birds of central Australia.

The second title at the head of this notice is that of a little volume containing a more popular account of Capt. White's travels into the remote and distant interior of Australia, and we have found much to interest us in perusing it. Many observations on the birds and other animals met with are scattered through the pages, and the account of the natives of the Everard range, where Capt. White was camped by himself for quite a long time, is of special interest.

Both volumes are illustrated by a number of photographs of scenery, natives, and vegetation, all taken by Capt. White himself, and we must heartily congratulate him on his most successful piece of zoological exploration in the central deserts of Australia.

The Auk.

[The Auk. A Quarterly Journal of Ornithology. Vol. xxxiii. 1916.]

The annual volume of the 'Auk' recently completed is fully up to the standard of past years, and contains a number of articles which will be read with pleasure, as well as with profit, by all ornithologists. We will endeavour briefly to indicate the scope of some of these, omitting, of course, reference to contributions which have already been noticed in our pages.

Among the faunal papers Mr. H. Mousley contributes a long article on the Birds of Hatley, Quebec Province; Messrs. Nichols & Harper on the Shore-birds of Long Island; Mr. A. P. Smith on the Birds of Kerr County, Texas; Mr. S. F. Rathburn on those of the Olympic Mountains in Washington State; and Mr. A. H. Norton on some rare Birds recently noticed in Maine. Mr. R. F. Hussey writes a pleasant article on the spring Birds met with near the Astronomical Observatory at La Plata in the Argentine, and Mr. Wetmore on the Birds of Vieques Island, which lies off the eastern coast of Porto Rico and where the writer spent about a month in the spring of 1912.

Of more general interest is a long paper by Mr. Julian S. Huxley on "Bird-watching and the Biological Sciences." It will be remembered that Mr. Huxley, a grandson of Prof. Huxley, is now Assistant-Professor of Biology at the

Rice Institute, Houston, Texas. His paper is a plea for a *rapprochement* between the amateur bird-watcher and the professional zoologist and anatomist, and he shows that many of the observations and facts gleaned by the former from careful and patient bird-watching are of the utmost value, and if skilfully noted down can be of the greatest assistance in solving some of the most difficult problems of biology.

Of papers dealing with migration problems Mr. J. C. Phillips draws the attention of his readers to the fact, recorded by Prof. Reichenow some years ago, of the occurrence of enormous flights of the North-American Ducks—The Green-winged Teal, The Pintail, and the Canvas-back—across the Marshall Islands, which lie to the north-east of New Guinea, in October and May, and he asks where do they come from and where do they go to, as none of these species are known anywhere south of the Equator, and it is difficult to know what becomes of them in the winter months; presumably they arrive from Alaska, but this, again, is a distance of over 5000 miles.

Another paper dealing with Ducks is one by Mr. W. de W. Miller in which it is pointed out that the Scoters generally placed in one genus (*Oidemia*) can be naturally divided into two distinct sections distinguished by important structural characters, and that it is advisable to recognise two genera—*Oidemia*, type *O. nigra*, with an attenuated outer primary in the male, sixteen tail-feathers, and without an enlargement of the trachea; and *Melanitta*, type *M. fusca*, with a normal outer primary, fourteen tail-feathers, and two bulbous enlargements on the trachea.

Messrs. Bowdish & Philipp have recently found the nest and eggs of the Tennessee Warbler in New Brunswick. These eggs are among the rarest and least known of those of North-American Birds. The first definitely recorded were taken at Fort Smith in the far north-west. The nest and eggs of the Snow-Finch (*Leucosticta australis*) are also described for the first time, having been taken by Mr. F. C. Lincoln at an elevation of 13,500 feet in Colorado.

The following new forms are described for the first time:—*Penthestes hudsonicus nigricans* Townshend, from Labrador; *Cryptoglaux acadica brooksi* Fleming, from Queen Charlotte Islands; *Cloëphaga hybrida malvinarum* Phillips, from the Falkland Islands; *Æstrelata cahow* and *Puffinus puffinus bermudæ* Nichols & Mowbray, from Bermuda. It will have to be determined later whether *Æstrelata vociferans*, recently described in 'The Ibis' by Dr. Shufeldt, is identical with *Æ. cahow.*

The last article in the present volume deals with a new proposal in regard to changes in the A. O. U. Check-list. Up till now, any additions or amendments have been decided on by a standing committee appointed for that purpose, and their decisions have been on the whole accepted almost universally by the body of American Ornithologists, though murmurs and grumbles have sometimes made themselves heard. It is now proposed to divide the proposed changes into two categories:—Those that may be called nomenclatural, *i. e.* cases of change of old-established names; these will be settled by the committee, as they can all be dealt with by strict adherence to the code of rules of nomenclature. Secondly, those that may be called ornithological, such as the acceptance or rejection of newly proposed subspecies or genera. These cases must, of course, depend on the examination of large series of specimens, and also on individual opinion and judgment. With a view of inviting study and criticism on these later cases, the committee now present a list of forms described as new since the publication of the last edition of the Check-list and another of the forms which it has been proposed to reject.

We hope that this new method of dealing with a very difficult and vexed question will be found a satisfactory one and that the committee will be assisted to give a decision in these cases, which will commend itself to the large body of working ornithologists of the United States. Personally we still feel that many of the nomenclatural questions cannot be decided by a code of rules, but must depend on the opinion of the individual worker. Such questions, for instance, as to whether an old and obscure description is sufficiently explicit or not to diagnose a well-known species, at once occurs to one. Is Boddaert's description of *Motacilla borin* sufficient to diagnose the British Garden Warbler as it is believed to be by Hartert, but not by the Committee of the B. O. U. who drew up the recently published list? Or, to take another question in which the A. O. U. and B. O. U. list differ. What is the type of *Ampelis*, and can it be used for the Waxwings? That question is discussed on p. 362 of the B. O. U. list, and the conclusion there given is of course the one favoured by the present writer but not by the A. O. U. Committee.

Avicultural Magazine.

[Avicultural Magazine. Third Series. Vol. vii., November 1915–October 1916.]

Notwithstanding the frequent clamouring of the editor for contributions, the 'Avicultural Magazine' seems to be able to hold its own and to give us a continuous flow of articles of all sorts relating to aviculture and kindred subjects. We have only space to mention a few of those more interesting to ornithologists generally.

"A French Member," who originally imported two species of Humming-birds alive from Guadeloupe, has again after two failures succeeded in obtaining another lot from Venezuela. About twenty-five birds were safely landed and among them were the following species:—*Trochilus mango*, *Ægyrtria fimbriata*, *Æ. milleri*, *Sauzerottea felici*, *Chrysolampis elatus*, and *Eulampis jugularis*. The birds were landed in August 1915, and we hope that some of them are still alive.

Mr. F. E. Blaauw writes on his observations and experiences with the Humming-bird, *Eustephanus galeritus*, in the southern part of South America, and compares its behaviour with that of the Sun-birds of South Africa. He notices that the Sun-birds seldom hover in front of a flower with quivering wings, as the Humming-birds invariably do. Mr. Blaauw also writes on the birds he observed along the river at Oudtshoorn in South Africa, and on the breeding of the Emperor Goose at Gooilust.

The editor, Mr. Astley, contributes several articles; the one of most general interest is concerned with his Motmot (*Momotus momota*) and the method by which the long tail-feathers become racketed, a subject he has also discussed in our own pages. His article is illustrated with photographs and a beautiful coloured plate.

Other coloured plates illustrate the Pink-crested Touraco (*Turacus erythrophthalmus*), lately bred by M. Delacourt in his aviaries at Villers-Bretonneux in France, and the Towhee (*Pipilo erythrophthalmus*), a familiar North-American bird. This last plate and article are reproduced from 'Bird-lore.'

Several members have sent accounts of the birds noticed by them at the front: in the case of Flanders, Capt. Gosse and Lt.-Col. Tweedie, and in the case of Macedonia, Capt. B. E. Potter.

There are many other articles of a strictly avicultural interest which we are unable to comment on for want of space; Dr. Hopkinson concludes his useful dictionary or glossary of the English names of Parrots, and commences another dealing with the many birds known under the name of Robin.

Journal of the Nat. Hist. Soc. of Siam.

[The Journal of the Natural History Society of Siam. Vol. ii. no. 1, 1916. Edited by Malcolm Smith and W. J. F. Williamson. Bangkok. 8vo.]

An energetic band of enthusiastic naturalists resident at Bangkok have recently founded a Natural History Society to investigate and study the zoology and botany of Siam, and have also started a journal in which to publish their results. The first part of the second volume, which has recently reached us, contains an interesting paper by Mr. Williamson, one of the editors, on "Some Birds not previously recorded from Siam." These are thirty in number and include several interesting forms, such as the

Formosan Skylark (*Alauda gulgula sala*), previously only known from Formosa and Hainan, the New Zealand Godwit (*Limosa novæ-zealandiæ*), and the Shoveller (*Spatula clypeata*).

Another note contains some account of the very rare Giant Ibis (*Thaumatibis gigantea*), of which only four examples are known, the first having been obtained in Cochin China and described by Oustalet. A photograph of a mounted specimen obtained in Siam by Mr. K. G. Gairdner in 1913, and now in the Natural History Museum at South Kensington, illustrates this note.

A third note by Mr. Williamson deals with the distribution of *Geopelia striata*, which is common about Bangkok, but is believed to have been introduced as a cage-bird from Singapore, as it is found throughout the Malay Peninsula.

List of other Ornithological Publications received.

Blaauw, F. E. Waarnemingen op het Gebied van Dierengeografie in Zuid-Afrika. Tijdschift K. Ned. Aardrij. Genoots. xxxiii. Leiden, 1916.

Mullens, W. H. & Swann, H. K. A Bibliography of British Ornithology. (Parts III. & IV. London, 1916.)

Thorburn, A. 'British Birds,' Vol. iv. London, 1916.

Bird Notes. (New Series, Vol. vii. Nos. 10–11. Ashbourne, 1916.)

British Birds. (Vol. x. Nos. 5–7. London, 1916.)

Bull. Soc. Zool. de Genève. (Tome ii. Fasc. 7–9. Genève, 1916.)

California Fish and Game. (Vol. ii. No. 4. San Francisco, 1916.)

The Condor. (Vol. xviii. No. 5. Hollywood, Cal., 1916.)

The Emu. (Vol. xvi. pt. 1. Melbourne, 1916.)

The Irish Naturalist. (Vol. xxv. No. 10. Dublin, 1916.)

Journal of the Federated Malay States Museum. (Vol. vii. pt. 1. Singapore, 1916.)

Junta de Ciences Naturals de Barcelona. (Anuari, 1916.)

Revue Française d'Ornithologie. (Nos. 90, 91. Orléans, 1916.)

Rivista Italiana di Ornitologia. (Vols. i.–iii. Bologna, 1911–15.)

The Scottish Naturalist. (Nos. 58–60. Edinburgh, 1916.)

South Australian Ornithologist. (Vol. ii. pt. 8. Adelaide, 1916.)

IX.—*Letters, Extracts, and Notes.*

The Steamer Duck.

Sir,—May I be allowed space for a few remarks on the Steamer Duck with reference to Mr. Blaauw's recent paper ('Ibis,' 1916, p. 478) on South American *Anatidæ*?

To recapitulate: this Duck, discovered in 1582 by Pedro Samiento, and noted by other travellers as Race-horse Duck, Loggerhead Duck, etc., was finally given its name, *Anas cinerea*, by Gmelin in 1788.

Captain King in 1830 separated the species into a volant and a non-volant form (P. Z. S. p. 15), and the former became known as *patachonicus*, the latter as *brachypterus*. Since then the volant form has been subjected to criticism from various sources. Cunningham (Tr. Zool. Soc. vii. 1871, pp. 493–501) was satisfied that only one species existed, and made the suggestion that the flying birds were adolescent individuals. He worked out the theory by skeleton material. Captain Abbot found a volant individual nesting, so that it was apparent that on Dr. Cunningham's theory adolescent Steamer Ducks nested before maturity. The Princeton Expedition to Patagonia, after a careful study of the specimens in the British and French Museums, came to the conclusion that Cunningham was right in so far as only one species of *Tachyeres* existed; they thought that the young birds did not attain full plumage until the second, and perhaps the third, year of life, and that the first breeding was probably accomplished in the phase of plumage called *patachonicus* by Oustalet. They did not meet with the Steamer Duck themselves, and added nothing new to our knowledge of the species.

Pässler (Ornith. Monatsbr. 1909, p. 103) noted flying Steamer Ducks on the west coast in the vicinity of Chiloe. He tells us that these Ducks can and do fly for a short distance when cornered by boats against the land. He saw flights of 500 to 1000 metres.

Blaauw (Notes Leyden Mus. xxxv. 1912, p. 47) again returned to the theory of two species. He concluded that young birds could not fly at all, and that the volant individuals were really different in size and plumage from the non-volant. He has repeated these observations in 'The Ibis' for July, 1916.

It so happens that Mr. W. S. Brooks has only recently returned from the Falkland Islands in the interest of the Museum of Comparative Zoology at Cambridge, Mass. At my request he paid particular attention to Steamer Ducks, and had ample opportunity to observe and shoot them and handle a large series of specimens. I have been carefully over his journal, and think that some of his observations may be of interest at this time. The Falkland Island natives speak of the flying Steamer Duck as a "canvas-back," but say such Ducks are rare. Mr. Brooks was convinced that certain individuals do fly, although he did not see the performance himself. He feels certain that the adolescent theory is wrong.

I extract freely from a letter of his, dated August 14, 1916:—"Blaauw's *T. cinereus* has the orange-yellow bill in both sexes. Of all the breeding birds seen by me (in the Falklands) no female has a bill of this colour, and yet in the Falklands I have no reason to doubt that some of them can fly, for all the natives with whom I discussed the subject agreed in this and referred to the flying form as the 'canvas-back,' a bird supposed to be lighter and more bleached in appearance.

"Now Blaauw's flying bird he claims is smaller, and the female has a brown or black bill, similar to the Falkland Islands birds in which flight is a great exception. Falkland Islands birds also usually carry the tail upright, a character which Blaauw gives for *patachonicus*. On the same page he states that he has seen these birds flying about the seashore, as well as lakes.

"I have frightened hundreds of them, but never saw anything nearer actual flight than the body clear of the water except the feet.

"A male I took on February 5 at Port Stephens, W. F., being frightened in a small waterhole near the shore, nearly cleared the ground in its efforts to escape; I think it could have done so had there been a favourable slope.

"On January 20, at Port Stephens, a flock of these birds on being frightened showed all stages of progress from the flapping of a young Sheldrake to merely the feet touching.

"Blaauw's paper does not convince one; in fact, *we are worse off than ever*. His *T. patachonicus* agrees in appearance with the only birds (perhaps thousands) that I saw on the Falklands. His *T. cinereus*, *with orange-yellow bill in both sexes*, perhaps does not exist at all. Is it not very rare in Ducks sexually unlike in colour to both have the yellow bill which so often characterizes the male?

"I rather doubt if these birds can ever be satisfactorily differentiated, for it seems to me that this species is in the midst of its transition from a flying to a non-flying form, as in the Falklands it certainly exhibits every stage from mere flapping to flights from the nest to the water, probably not greatly exceeding half a mile. It would surprise me if a satisfactory line could be drawn anywhere. Obviously the flying birds are greatly in the minority throughout its range, and if more exist in Tierra del Fuego and southern Patagonia, it may be because it has become necessary in a region where for ages they have had primitive man and other natural enemies to contend with."

Now in summing up my own opinion, which is only an opinion, and no better than another's, I might add that more work has got to be done in regions where the flying birds can be found easily. Salvadori in the British Museum Catalogue quoted G. E. Cox (Annals de la Universidad de Chili, 1863) as to the presence of large numbers of flying Steamer Ducks in several Andean lakes. So far as I know, this observation has not been verified, but a search through Chilian literature might bring out some interesting points.

First, then, I should think that the theory of Dr. Cunningham, which connects volant power with adolescence, must certainly go by the board.

Second. Volant Steamer Ducks appear to be more common on the mainland and on Tierra del Fuego than on the Falklands.

Third. The power of flight may be associated with a different size and different plumage, but this fact has not been clearly demonstrated.

Fourth. The Falkland Island Steamer Ducks are well differentiated as to sex. The males are large and light coloured (apparently getting lighter with age) and have yellow bills (at least in the breeding-season). The females are smaller, browner, and have dark bills.

Fifth. The species seems to be on the border-land as concerns its power of flight. Even in non-flying birds there is a marked variation in the ability to use the wings.

J. C. Phillips.

Wenham, Mass., U.S.A.
28 August, 1916.

Birds at the Front.

Sir,—You may be interested to hear that in a wood in which there were no plants left on the ground, and no leaves on what remained of the trees except for a few stool-shoots thrown out by some, I was yet able to observe the following birds on one day (Sept. 7):—Blackbird, Thrush, Chaffinch, Great Tit, Jay, Hedge-Sparrow, Starling, Magpie, Swallow, and Hobby. The last four were only flying over. The Thrush and Blackbird I heard at dawn and the others shortly afterwards, in a remarkably welcome time of quiet which the Germans allowed us for a few hours ; the Jays were a pair which came through the bare trees in the afternoon. The Great Tit and Hedge-Sparrow I had heard there two days before, so they were evidently remaining in what had been their wood. One of the Chaffinches flew poorly and had a hoarse call-note : perhaps it had got shell-shock.

In my present position I am able to watch migration most mornings : a fortnight ago there were Yellow Wagtails and Tree-Pipits with the Meadow-Pipits, but now the chief other species are Linnet, Tree-Sparrow, and Chaffinch, which go over in their usual small parties.

The great majority of the Swallows appear to have left here about the 25th of September.

Yours faithfully,
C. J. Alexander, Pte.
(2nd Queen's).

8 October, 1916.

Australian Subspecies.

Sir,—I would like to give a short explanation in connection with the letter from my good friend Edwin Ashby in the October 'Ibis,' pp. 664–665. He has suggested that subspecies were superfluous and that geographical variants were only recognisable. But "subspecies" is the short name for a "geographical variant," so that we are actually in agreement. Further, he wrote:—"Personally I think that this being the case, *Rhipidura rufifrons* should stand for the whole series as if this had not been accepted." Yet in my 'List of the Birds of Australia,' published in 1913, I had taken up this standpoint, and if Mr. Ashby will refer he will see it consistently used. Again he quotes the case of "*Pardalotus affinis*" Gould as being of a different nature, stating: "I have not met with any intermediate forms." These, however, have been recorded by more than one worker, and I have such in my collection.

I should just like to add that I have concluded that the value of subspecies is almost negligible in Australian Ornithology. In the Palæarctic Region they may be useful, but even here I think that they have been much overrated; while if large series are examined from Australia very many subspecific forms can be differentiated, but larger series always link most extreme cases up very quickly. Consequently in my 'Birds of Australia' I have depreciated subspecies even as advised by Mr. Ashby in his letter, but this course was adopted nearly two years ago.

Yours faithfully,
Gregory M. Mathews.

Foulis Court,
Fair Oak, Hants.
23 November, 1916.

Swedish Ornithology.

Sir,—The Swedish novelist and bird-enthusiast, Mr. Bengt Berg, has recently published some books on ornithology which, though written in Swedish and therefore not within the easy reach of the English public, still are worthy of being noticed in 'The Ibis.'

These books, which bear the titles 'Tåkern'* and 'Stora Karlsô' are, however, some of the most splendid books which have lately been published in Swedish relating to the ornithology of the country.

At the Swedish Province of Östergôthland a small lake named Tåkern constitutes a famous resort for different kinds of water-birds. Mr. Berg's publication gives an ample and exhaustive account of the bird-life of this interesting lake during the spring, and his accounts, which are written in a way easily understood by non-professionals, are accompanied by numbers of most beautiful photographs of birds in their wild state. The greatest number of the photographs are devoted to the birds, but several others show the vegetation and the natural conditions around the lake. In my opinion the most beautiful pictures are those illustrating the different manner and behaviour of our Common Swan (*Cygnus olor*) when flying.

The nidification and behaviour of the Marsh-Harrier (*Circus æruginosus*) are also subjects for several excellent pictures.

In the other book, 'Stora Karlsô,' Mr. Berg also gives a detailed account of the bird-life on this interesting island, which constitutes the only known breeding-place of the Common Guillemot (*Uria troille*) in the Baltic. The photographs in this volume are quite as good as those of 'Tåkern,' and in the text the reader will get several highly interesting biological observations about the different kinds of birds breeding on the island.

As a matter of fact both the volumes ought to be found on the book-shelf of every ornithologist, and the author is to be highly congratulated on the excellent way in which he has carried out his difficult task of securing a photographic record of our bird-friends in their native haunts.

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* For a notice *vide* 'Ibis,' 1916, p. 646.

I am, Sir,
Yours faithfully,
NILS GYLDENSTOLPE,
Assistant, Vertebrate Department,
R. Nat. Hist. Museum, Stockholm.

20 October, 1916.

Corrections to Dr. van Someren's Paper.

SIR,—Will you kindly publish the following corrections to my papers in 'The Ibis' of April and July 1916:—

Page 220. The type of *Francolinus nahani* is in the Tervueren Museum, near Brussels, *not* Tring.

Page 433. *Macronyx newtoni*, should read *M. wintoni*.

The locality Kyetema, wherever it appears, should read Kyetume.

Yours truly,
V. G. L. VAN SOMEREN.

Nairobi, Bt. E. Afr.
9 November, 1916.

Directive-marks in Nestling's mouths.

SIR,—I have lately seen Dr. Butler's letter in 'The Ibis' for July, and I hasten to offer him my very sincere apologies for a mistake that must have seemed inexcusable; also to express my regret to Mr. Pycraft in the same connection.

I need not go into the reasons for the mistake, which I regret. But I take it that the *application* of the theory, as it was stated in Mr. Pycraft's 'Infancy of Animals' and discussed by Capt. Ingram and myself, is, actually, very largely Mr. Pycraft's. At any rate, I judge from Dr. Butler's letter that his own suggestion was probably limited to such ornamentation as we find (*e.g.*) in the flanges of the beaks of the Estrildinæ. With this much of the view I am in hearty agreement. Capt. Ingram mentions the occurrence of similar ornaments in *Cinclus, Parus*, and *Troglodytes* ('Ibis,' 1907, p. 576), and they appear in Mr. Bates's description and Mr. Keuleman's figure of immature *Parmoptila woodhousii*, with a bulky and (one judges) dark nest ('Ibis,' 1909, p. 67).

The further view, that the twin-spot tongue may be similarly explained, remains, I fear, unsupported by my now somewhat numerous special observations and experiments, and it is only necessary to state the birds that possess this tongue — certain Shrikes, Flycatchers, White-eyes, Larks, Turdidæ, and Warblers, mostly birds with open nests—to give point to Capt. Ingram's criticism of the theory in 'The Ibis' for 1907, p. 576. *Macronyx* nestlings too, with the Bearded Tit type of patch, lie in brilliantly-lit nests.

I am free to admit that my own, alternative, explanation as to the use of these markings is as yet by no means proved ; but these are, at any rate, facts which tell strongly against the view that they were originally a nestling adaptation at all. I myself feel that they probably represent what was once the adult mouth of a common ancestor, and is now a stage in development that is still well accentuated in those of its descendants to which it continues to be (or has again become) of practical value on the lines I have already suggested ('Ibis,' 1916, pp. 281–284).

Yours truly,
C. F. M. Swynnerton.

Gungunyana,
Melsetter, Rhodesia.
24 October, 1916.

Second Oological Dinner.

The second Annual Oological Dinner was held in London at Pagani's Restaurant, on Wednesday, September 13, 1916. Lord Rothschild took the chair at 7 o'clock, Mr. Thomas Parkin acting as Vice-Chairman.

The Chairman, after some opening remarks, congratulated those present on the wonderful exhibition of eggs on view. He proceeded to exhibit a pair each of the eggs of the Condor (*Sarcorhamphus gryphus*), and of the Californian

Condor (*Pseudogryphus californianus*), the latter now very rare, and fortunately strongly protected. He explained that the eggs of the latter could easily be distinguished by their greenish tinge.

Lord Rothschild also exhibited two clutches of 4, one of 3, and four of 2 eggs of *Falco biarmicus erlangeri*, from southern Algeria and the western Sahara; and one clutch of 3 of *Falco peregrinus pelegrinoides* from Morocco, all fully identified, mostly by shooting one of the parent birds. The eggs of these two Falcons seemed to be indistinguishable.

Dr. Ernst Hartert, who had collected most of them, made some remarks on their distribution and nesting.

Mr. Thomas Parkin exhibited:—

(*a*) A splendid specimen of the egg of the Great Auk.

(*b*) Two eggs of the Marsh Harrier, the last ever taken on Whittlesea Mere.

(*c*) An egg of the Waved Albatross (*Diomedea irrorata*), taken 28 Nov. 1897 by the Webster-Harris expedition on the Galapagos Is., and formerly in the Tring Museum.

(*d*) Two eggs of the Lammergeyer or Bearded Vulture (*Gypaëtus barbatus*), taken in Spain by Dr. A. C. Stark, 12 Jan. 1884. They are figured (as perhaps the finest and darkest clutch known) by Dresser in his 'Eggs of the Birds of Europe.'

(*e*) An egg of the Cape Pigeon (*Daption capensis*), taken at the South Orkneys in December 1903 by the Scottish National Antarctic Expedition, and presented to Mr. Parkin by Dr. Bruce, the leader of the expedition.

(*f*) An egg of the Norwegian Jer-Falcon (*Hierofalco gyrfalco*), taken in West Finmark in 1856 by John Wolley.

(*g*) A clutch of eggs of McCormick's Skua (*Megalestris maccormicki*), taken on the slopes of Mount Erebus by Scott's Antarctic Expedition in January 1914.

Mr. Stuart Baker exhibited some cases of eggs of the rarer Indian Falconidæ, the majority of which had never been previously exhibited in Europe. Amongst the eggs shown were a fine series of those of *Ictinaëtus malayensis*, taken by Mr. J. Stuart in Travancore, and by Col. Rattray, Mr. J. Parker, and the exhibitor in northern India; of *Spizaëtus kelaarti*, all taken by Mr. Stuart in Travancore; and of *S. nepalensis*, taken by Mr. S. L. Whymper and Colonel Buchanan in the Himalayas.

Mr. Stuart Baker also showed complete series of the eggs of *Falco peregrinator*, *F. severus*, and of *Pernis cristatus*, together with corresponding series of the eggs of their European allies *Falco peregrinus*, *F. subbuteo*, and *Pernis ptilorhynchus*, and commented on their similarities and differences.

Other eggs shown by Mr. Stuart Baker were those of *Lophotriorchis kieneri*, and of the genera *Baza*, *Spizaëtus*, and *Spilornis*.

The Rev. F. C. R. Jourdain also showed four clutches of the Honey-Buzzard (*Pernis apivorus*) for comparison.

Mr. P. B. Smyth exhibited :—

(*a*) A drawer of clutches of eggs of the Corn-Bunting, showing many good varieties.

(*b*) A fine clutch of eggs of the Hen-Harrier, brightly blotched, and including an abnormally small egg.

Mr. R. W. Chase exhibited a fine series of British-taken eggs of the following Raptorial birds, showing great variation.

(*a*) Series of eggs of the Golden Eagle (*Aquila chrysaëtus*).

(*b*) 12 clutches of *Buteo vulgaris*.
1 ditto *Milvus ictinus*.
9 ditto *Falco peregrinus*.
2 ditto *Falco subbuteo*.
6 ditto *Falco æsalon*.
12 ditto *Falco tinnunculus*.

Mr. Reginald Ware exhibited :—

(*a*) Two clutches of 6 each of the erythristic type of Yellow Wagtail (*Motacilla rayi*), apparently the produce of different birds; both from Romsey marsh, 2 May, 1914, and 14 May, 1916.

(*b*) A clutch of 11 Blue Tit (*Parus c. obscurus*), exceptionally heavily marked, some of the blotches measuring 10 mm. by 6 mm. (Frant, 20 May, 1908).

Mr. CLIFFORD BORRER exhibited :—

(*a*) Some picked clutches of British-taken eggs from his own collection, including eggs of the Dartford Warbler (pale eggs), Crossbill (true erythrism ; ground-colour cream with red spots), Greenshank (one large egg heavily marked), Woodcock (heavily marked dark eggs from Ross-shire), Chough (one blotched set, and a normal clutch for comparison ; Kerry), Peregrine Falcon (large eggs), Dotterel (Scotland, dark eggs).

(*b*) A clutch of 4 eggs of the Nightjar (Norfolk, 1916).

Mr. PERCY F. BUNYARD exhibited the following from his collection :—

Yellow Hammer (*Emberiza citrinella*). A series showing great variation. Among them the following are of special interest :—A clutch of 4 with bluish ground almost without markings. A clutch of 5, exceptionally heavily scrolled reddish brown with large and conspicuous underlying markings. A clutch of 4, with yellowish ground, faintly scrolled pale brown.

Grasshopper Warbler (*Locustella nævia*). A representative series showing normal types and varieties, among the latter the following were noteworthy :—A clutch of 6, with pure white ground, sparingly marked at the large ends. A clutch of 5, pure white ground heavily zoned. A clutch of 5, heavily zoned at the extreme large ends.

Cuckoo (*Cuculus canorus*), with Whitethroat (*Sylvia communis*). A remarkable sequence of 4 clutches from Surrey, all taken within a radius of 50 yards on the following dates : May 27th with 4, and 5 Whitethroat's ; May 31st with 3 do. ; June 24th with 2 do. All those of the Cuckoo are obviously by the same bird.

Mr. Bunyard remarked that though he had lived in a Cuckoo country all his life, he had only once previously found the Whitethroat used as a fosterer.

Sparrow-Hawk (*Accipiter nisus*). Four clutches exceptionally beautifully and heavily marked.

Hobby (*Falco subbuteo*). A clutch of 3 typical but small eggs from Surrey, and a clutch of 3 of the rarer Kestrel type from Northamptonshire.

Mr. Bunyard remarked that many collectors doubted this latter form, but of recent years it had frequently been taken by well known field-men, and that there could no longer be any doubt on the question.

Merlin (*Falco æsalon*). A very beautiful clutch of 5 from Yorkshire, three of which are heavily pigmented at the large ends and two at the small; the remaining portions are only faintly marked on a creamy white ground.

Kestrel (*Falco tinnunculus*). Two clutches of 5 of the Sparrow-Hawk type, very handsomely marked on a conspicuous white ground, a clutch of 5 very remarkable eggs from Shropshire scrolled chocolate-brown on a pure white ground, resembling Common Buntings in the arrangement of markings, and a clutch of 5 with conspicuous purplish grey underlying markings, giving them a very beautiful appearance.

Redshank (*Totanus totanus*). A clutch of 4 with *greenish* ground faintly marked at large ends; a similar clutch of 3 from Kent boldly blotched and very much like eggs of Spotted Redshank (*Totanus fuscus*).

Ringed Plover (*Ægialitis hiaticula*). Three clutches of 4 most remarkable eggs from Norfolk, all from the same bird in one season, taken on May 9th, June 1st, and June 22nd, showing how great is the persistent desire for reproduction in a species. All three clutches show wonderful uniformity in the markings, shape, and size; they are very heavily pigmented with large blotches of jet-black on a warm creamy white ground; the largest blotch measures ·525 × ·875 inches.

Lapwing (*Vanellus vanellus*). A clutch of 3 showing true erythrism, from Forfar, and a normal clutch for comparison; ground-colour pale reddish brown, markings rich black-brown.

Razorbill (*Alca torda*). A series of four eggs showing a reddish-grey ground, with numerous purplish grey underlying markings, giving them a distinctly purplish appearance, one with bright reddish-brown ground, heavily pigmented with dark brown blotches at the large end, and conspicuous reddish-grey underlying marks, and one unique egg, with buff ground evenly splashed with minute surface markings of dark brown, and minute grey underlying marks.

Yellow Wagtail (*Motacilla raii*). A clutch of 6 from Hampshire with *green* ground.

The Rev. F. C. R. Jourdain exhibited :—

(*a*) A fine series of 12 eggs of the Black Vulture (*Vultur monachus*), taken by himself in the Dobrudja in 1910 and 1911, showing a remarkable range of variation.

(*b*) A series of 28 eggs of the Goshawk (*Accipiter gentilis*), from various localities, including Swedish Lapland, Germany, Roumania, Andalusia, Morocco, and Japan. The difference in size between eggs from northern and southern localities was very noticeable.

Mr. Staines Boorman exhibited :—

(*a*) A very fine variety clutch of eggs of the Common Jackdaw.

(*b*) A set of 7 eggs of the Tree-Pipit.

(*c*) A most remarkable clutch of heavily blotched eggs of the Oystercatcher, from the western Highlands. Varieties in this species are rarely obtained.

‘The Zoologist.’

The well-known and old-established natural history monthly, ‘The Zoologist,’ having been acquired by Messrs. Witherby & Co., will in future be incorporated with the illustrated monthly magazine, ‘British Birds,’ published by the same firm at 326 High Holborn.

There will be no consequent alteration in the policy of ‘British Birds,’ and it will still treat solely of birds, but its scope will be slightly enlarged to admit a limited number of articles and notes on birds of the western portion of the Palæarctic Region other than British.

THE IBIS.

TENTH SERIES.

Vol. V. No. 2. APRIL 1917.

X.—*The Birds of Yemen, south-western Arabia, with an account of his journey thither by the collector, Mr. G. Wyman Bury.* By W. L. Sclater, M.A., M.B.O.U.

(Plates III. & IV., and Text-figure 1.)

Introduction.

The former Turkish Province of Yemen in south-western Arabia has been seldom visited by European travellers, and it was a piece of good fortune that enabled the British Museum to obtain the services of Mr. Bury to travel into the interior of the province in 1913 to make zoological collections.

Mr. Bury spent a year in the country and made two journeys inland. During the first of these he penetrated as far as Menakha, which lies at an elevation of 7500 feet, and where he spent half the month of December 1912 and the whole of January 1913. On the second journey he reached Sanaa, the chief town of the province, some way beyond Menakha, and here he spent parts of the months of August and September 1913.

The collections of birds sent home by Mr. Bury consisted of upwards of 400 skins; a portion of these were destined for the Tring Museum: they are referable to 100 species. Among them the following are novelties, and have already been described by Mr. Ogilvie-Grant in the Bulletin of the British Ornithologists' Club:—*Rhynchostruthus p. yemenensis*, *Poliospiza yemenensis*, *Pseudacanthis yemenensis*, *Turdus menachensis*, *Accentor fagani*, *Œnanthe yemenensis*, *Parisoma buryi*, and *Cryptolopha u. yemenensis*.

In addition to these eight new forms the following twenty-seven have never previously been taken in southern Arabia; at any rate, they do not appear in the list compiled by Mr. Ogilvie-Grant in 1900:—*Cinnyricinclus verreauxi*, *Petronia dentata*, *Emberiza hortulana*, *Emberiza c. seminovi*, *Anthus r. cinnamomeus*, *A. l. captus*, *Lanius minor*, *Phoneus niloticus*, *Acrocephalus palustris*, *Sylvia c. icterops*, *S. carruca*, *Phylloscopus c. abietinus*, *Monticola rufocinerea*, *Phœnicurus p. phœnicurus*, *Luscinia luscinia*, *Cercotrichas podobe*, *Irania gutturalis*, *Saxicola r. maura*, *Alseonax gambagæ*, *Riparia rupestris*, *Hirundo rufula*, *Merops apiaster*, *Gypaëtus b. grandis*, *Hieraaëtus fasciatus*, *Gallinago media*, *Phalaropus lobatus*, *Numida p. ptilorhyncha*.

On the whole the avifauna of Yemen, as would be expected, shows a much stronger affinity to that of the Ethiopian region than to that of the Palæarctic region. Most of the typical Palæarctic forms are migrants which would naturally pass through Arabia on their journey south. One remarkable exception is the Lammergeyer, which appears to belong to the widely ranging race of southern Europe and Asia rather than to the Abyssinian form, to which it is certainly nearest in point of distance.

Mr. Bury has published an account of his travels in Yemen in a more popular form*, and we would recommend all who are interested in the subject to obtain this work. A few notes on the birds, to which a chapter is devoted, have been borrowed to make the present account more complete, and these with Mr. Bury's field-notes are placed in inverted

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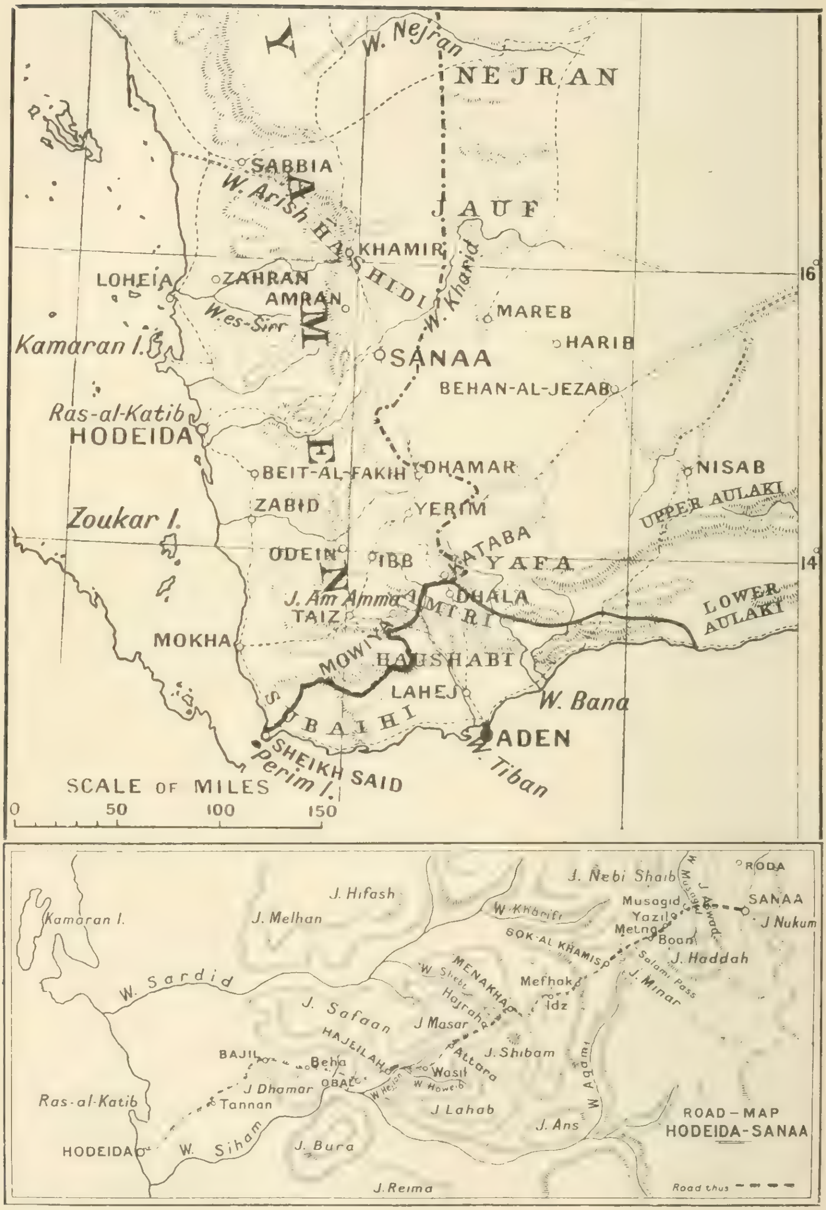
* 'Arabia Infelix, or the Turks in Yamen,' by G. Wyman Bury, pp. x+213, Illustr. & Maps. London (Macmillan) 1915. 8vo.


YEMEN
W. Nejran
NEJRAN
SABBIA
W. Arish
HASHIDI
JAUF
KHAMIR
W. Kharid
LOHEIA
ZAHRAN
AMRAN
W.es-Sirr
MAREB
HARIB
Kamaran I.
SANAA
BEHAN-AL-JEZAB
Ras-al-Katib
HODEIDA
BEIT-AL-FAKIH
DHAMAR
NISAB
ZABID
YERIM
UPPER AULAKI
Zoukar I.
KATABA
ODEIN
IBB
YAFA
14
16
J. Am Amma
AMIRI
DHALA
LOWER AULAKI
TAIZ
MOKHA
MOWIYA
HAUSHABI
LAHEJ
W. Bana
SUBAIHI
ADEN
SHEIKH SAID
Perim I.
W. Tiban
SCALE OF MILES
0
50
100
150
J. Hifash
J. Nebi Shaib
RODA
SANAA
J. Nukum
Kamaran I.
J. Melhan
W. Kharif
Musagid
Yazil
Metna
Boan
J. Awad
W. Musagid
SOK-AL KHAMIS
Salami Pass
J. Haddah
J. Minar
W. Sardid
MENAKHA
W. Sheb
Hajrah
Mefhak
Idz
J. Safaan
J. Masar
HAJEILAH
Attara
J. Shibam
BAJIL
Beha
Wasil
OBAL
W. Hejan
W. Howeib
J. Dhamar
Tannan
Ras-al-Katib
J. Lahab
W. Agdm
J. Ans
ROAD-MAP
HODEIDA-SANAA
HODEIDA
W. Siham
J. Bura
J. Reima
Road thus

MENPES PRESS WATFORD

MAP OF SOUTH-WEST ARABIA.
ROUTE-MAP HODEIDA-SANAA.

commas in the list of species. Finally, we are indebted to the publishers, Messrs. Macmillan & Co., for permission to copy two of the maps in that work which show the route traversed and the general situation of Yemen (Plate III).

Note on the History of Arabian Ornithology.

The earliest zoological explorer of Yemen was Pehr Forskål (1736–1763), a young Danish naturalist, and a pupil of Linnæus. He accompanied the celebrated traveller Carsten Niebuhr on his expedition to the east in 1761. After visiting Egypt they sailed down the Red Sea to Jiddah and Loheia, whence they travelled inland to various places in the interior of Yemen. Forskal unfortunately died at Yerim, on the road from Mokha to Sanaa, in 1763. After his return to Europe, Niebuhr edited his young companion's manuscript account of his collections. These consisted largely of plants and insects, but three birds from Yemen are included as well as others from other countries—the Bee-eater, the Hornbill, and the Kingfisher, examples of all of which are contained in Bury's collection.

The next naturalists to visit these regions were two young Germans, F. W. Hemprich and C. G. Ehrenberg. They did not apparently penetrate into the interior of Arabia, but visited the coast ports. Hemprich, like Forskål, sacrificed his life to his enthusiasm. He fell ill at Jiddah, and died in 1825 at Massowah, on the African coast of the Red Sea. In this case also the survivor, Ehrenberg, edited his companion's manuscripts under the title of 'Symbolæ Physicæ,' the portion dealing with the birds being published between 1828 and 1833. Ehrenberg also published an incomplete account of his travels under the title 'Naturgeschichtliche Reisen durch Nord-Afrika und West-Asien' (Berlin, 1828).

Rüppell, well-known for his travels in north-east Africa, also visited Arabia Petræa and some of the towns along the Red Sea coast, including Jiddah, where he apparently did some collecting, as some of his types came from there. He does not seem, however, to have penetrated into the interior to any extent. He also published an account of his travels, 'Reisen in Nubien, Kordofan und peträischen Arabien' (Frankfurt-a.-M. 1829), in addition to his well-known zoological works.

Turning now to Aden and its hinterland, we find that Col. J. W. Yerbury, M.B.O.U., was the first to publish an account of the birds of Aden. This appeared in 'The Ibis' for 1886, and 76 species were mentioned, but only a small proportion of these were authoritatively identified by Dr. Bowdler Sharpe. Further lists of Aden birds have been made by Lieut. H. E. Barnes, Mr. R. Hawker, and by Col. Yerbury himself, all of which appeared in 'The Ibis.' In 1900 Mr. Ogilvie-Grant published a paper on the birds collected by Mr. A. Blayney Percival and Mr. W. Dodson in the hinterland of Aden. The expedition was proposed to the authorities of the Natural History Museum by General O'Meore Creagh, V.C., the Governor of Aden at that time, and the necessary funds were supplied partly by the Royal Society and partly by the Hon. Walter (now Lord) Rothschild. Considerable collections were made in the Haushabi country north of Lahej, and in the Abian country to the east of Aden. Mr. Ogilvie-Grant, by incorporating the results of Col. Yerbury's and Messrs. Barnes and Hawker's previous work, was able to give a list of 193 birds, forty-seven of which were previously not known from Arabia.

Mr. Percival was assisted by Mr. G. W. Bury, whom he met at Aden at this time, and the latter subsequently sent a valuable collection of birds, collected chiefly in the Amiri district, to the Museum; these unfortunately have never been listed, but notice of several of the species in this collection will be found in the present paper.

Mr. Bury also made some further collections when attached to an Austrian Expedition which visited southern Arabia for archæological investigations. An account of this collection was published by Drs. von Lorenz and Hellmayr, who found a number of new species among them. Since that date but little work has been done in Arabian ornithology.

A list of the various publications to which I have alluded follows, and these are quoted in the list of species with the name of the author and date only.

To Mr. Ogilvie-Grant I would here like to express my acknowledgments and warmest thanks for so kindly permitting me to describe this very interesting collection.

List of Literature.

1775. Forskål, P.—Descriptiones Animalium, Avium etc., post mortem auctoris edidit Carsten Niebuhr. Hauniæ, 1775. 4to.

1828-33. Ehrenberg, C. G.—Symbolæ Physicæ seu Icones et Descriptiones Avium, etc., etc. Berlin. 4to.

1835-40. Rüppell.—Neue Wirbelthiere zu der Fauna von Abyssinien gehorig. Frankfurt-a.-M. 4to.

1851. Nicholson.—Note on a new species of Francolin. Proc. Zool. Soc. 1851, p. 128, pl. xl.

1886. Yerbury, J. W.—On the birds of Aden and the neighbourhood. With notes by R. Bowdler Sharpe. Ibis, 1886, pp. 11–24, map.

1893. Barnes, H. E.—On the birds of Aden. Ibis, 1893, pp. 57–84, 165–181.

1893. Matschie, P.—[Seven birds from Aden collected by O. Neumann.] Journ. Ornith. 1893, p. 112.

1893. Barnes, H. E.—A list of the birds of Aden. J. Bombay N. H. Soc. viii. pp. 231–233.

1896. Yerbury, J. W.—Further notes on the birds of Aden. Ibis, 1896, pp. 13–41, pl. i.

1898. Hawker, R.—List of a small collection of birds made in the vicinity of Lahej, in southern Arabia. Ibis, 1898, pp. 374–376.

1900. Ogilvie-Grant, W. R.—On the birds of southern Arabia, with field-notes by A. Blayney Percival. Novit. Zool. vii. 1900, pp. 243–266, 591. Further additions, id. ibid. viii. 1901, p. 54.

1901. Lorenz, L. v. und Hellmayr, C. E.—Ein Beitrag zur Ornis Süd-Arabiens. J. f. O. xlix. 1901, pp. 230–245; also Denkschr. K. Akad. Wiss. Wien, lxxi. 1907, pp. 103–121, 1 pl.

1901 a. Ogilvie-Grant, W. R.—Letter on Lorenz & Hellmayr's new species from southern Arabia. Ibis, 1901, pp. 518–521.

1902. Ogilvie-Grant, W. R.—Description of *Serinus rothschildi* and *Scotocerca buryi* from southern Arabia. Bull. B. O. C. xiii. pp. 21–22.

1904. Neumann, O.—Drei neue Formen aus Süd-Arabien. Orn. Monatsb. xii. 1904, pp. 29–31 [*Cinnyris*, *Argya*, *Turtur*].

1913. Ogilvie-Grant, W. R.—Description of new birds from Yemen. Bull. B. O. C. xxxi. pp. 86–91, 112, and xxxiii. 1914, p. 91.

Account of the journey by G. Wyman Bury.

I landed at Hodeida on 30 November, 1912, with Ottoman credentials to the Governor of that port, who also controls the districts of Bura and Reima. It may be noted here that a passport is essential, but is of no use whatever as an introduction to the interior. The Province of Asir, *i. e.* the whole of northern Yamen, was closed against all but natives, and the southern coastal districts were in a state of revolt, even native traffic being suspended.

The Governor offered me the choice of Bura, Reima, or Menakha. I chose the last as being furthest inland, highest, and on some sort of a road.

I left Hodeida early in December with mule-transport, and struck eastwards across the Tihama or maritime plain in the cool of the day, halting for a few hours at Tannan. This is an Ottoman post and caravanserai for travellers some fifteen miles from Hodeida; a useful half-way house on this long stage.

The next halt was at Bajil, a small town between the foot-hills of the maritime range, thirty-two miles from Hodeida and about 600 feet above sea-level. The intervening country is chiefly desert: sand and low scrub, with occasional belts of bush and sparse mimosa. The ground rises gently to loamy uplands and cultivation, as Bajil is approached. Here there is a fair amount of tall bush, among which I saw the yellow Sparrow, *Passer euchlorus*, in numbers, the only place where I found it in Yamen.

Alæmon desertorum occurs on this maritime plain, and *Pyrrhulauda melanocephala* may be seen frequently outside Hodeida.

Beyond Bajil there is no more desert, but broad, open plains intersected by foot-hills and moderately fertile. Hornbills were first encountered among the sparse mimosa of Bajil plain.

The foot-hills close in towards Hajeilah, and the country gets more fertile and better wooded.

Away to the right of the road is the tall isolated massif of Mount Bura, about 5000 feet above sea-level. This district is well wooded and—politically speaking—fairly quiet, but the only feasible routes pass through disturbed areas, and were definitely closed during and after the summer of 1913; coffee comes down at irregular intervals from there to Hodeida by favour of the local freebooters. The Sheikh of Bura is a highly respectable and affable old man. Any European who can get to the top of Mount Bura with proper introductions would probably be well received. It has already been visited by European sportsmen.

Far to the south of Bura may be seen the long razor-backed ridge of Reima. This range has been the scene of much discontent and turbulence for the last year or so. The disturbance is due to taxation and may become chronic. "Pheasants" are said to occur on Reima, but the local word "akyal" is so loosely applied to any long-tailed bird of bright plumage that their quest is uncertain.

Hajeilah is a small township about 30 miles from Bajil, and 2080 feet above sea-level. The district is agricultural, and there are groves of tall timber between the adjacent foot-hills. There, Guinea-fowl and most of the bird-life of the neighbourhood are to be found. Reckless and unchecked wood-cutting is gradually destroying natural cover, as in other parts of Yamen.

The crops in the Hejjan valley are useful beats for small birds, but the Hajeilah population is churlish to strangers, though apt to improve on acquaintance.

The Hajeilah "grouse" occurs rarely and only on the stony slopes of the foot-hills. Here Guinea-fowl and Chikore may be heard calling simultaneously, the former from some fold of the foot-hills and the latter from the heights running up towards Menakha ridge.

The long-tailed *Coracias abyssinus* occurs frequently in this district, but no higher, and this is also the highest limit of the Hornbills.

The road up from Hajeilah lies along the stony gorge of the Hejjan, and, among its bushes, the Paradise Flycatcher ranges to its lowest limit; this bird is unknown at Hajeilah, and is never seen at Menakha or Wasil.

The half-ruined caravanserai of Wasil (a small village perched on a spur of the main heights at 4200 feet) is a convenient halting-place on the long climb up to Menakha. It is reached by a steep zig-zag up from the gorge of the Hejjan about four hours from Hajeilah. The traveller should time his journey so as to be out of this gorge before the morning sun strikes into it. This involves a start from Hajeilah at not later than 3 A.M. in summer.

Menakha is six hours from Wasil up a winding mountain-road—a fortress-town of some 8000 inhabitants, at an elevation of 7500 feet. The town itself is built along a spur of Mount Shibam (the culminating point of this massif).

Menakha, in the winter months, is beset by mountain mists most afternoons. These mists drive up from below and hang about till late at night and, sometimes, all next day. They are thick and damp, and do much to keep the coffee flourishing during the winter drought. The terrain consists of deep ravines and soaring heights that seem to overhang the town. The neighbourhood is badly wooded and there is little natural cover, though many birds take refuge between the stones that form field-terraces (a common feature of the landscape). Coffee gives good cover, though difficult to work; it does not flourish above 7000 feet or below 4000 feet. Walnut and almond groves occur in sheltered ravines. Apricot and plum orchards grow up to 8000 feet, and attract numbers of *Pseudacanthis yemenensis*, which I first met here. This bird seems to be very local; I only saw it at Menakha and Sok-al-Khamis and, as a cage-bird, at Sanaa: I estimate its vertical range at 7000–8000 feet. All bird-life is scarce at 9000 feet in the winter. Near the summit of Shibam I only saw an occasional Chat or Ground-lark; both are very common round Menakha.

Even the big birds of prey seemed to prefer precipices at mid-altitude, and spent the night on sheltered ledges. Any carcase would draw vultures—*Gyps*, *Neophron*, and *Vultur monachus*. I often noted Lämmergeyer here soaring over the slaughter-ground outside the town, on the look-out for a bone. They seemed afraid of the larger vultures, and were very wary and difficult to approach. This bird ranges down to Wasil, but I have never seen it on the inland or eastern slopes of the Shibam massif, nor does it occur among the foot-hills that lie beyond and below Menakha towards the main range that forms the scarp of the central Yamen plateau. Yet I met it again at Sok-al-Khamis high up on this scarp, but lost it again after crossing the main range, and it never occurs on Sanaa plain. I have never seen it in any part of the Aden Hinterland. I spent two months at Menakha, and left in mid-February for Wasil.

Here, the terrain is composed of a series of giant spurs and deep, precipitous ravines, which drain steeply down from the heights of Menakha into the Hejjan valley.

Wasil is much better wooded than Menakha. It was here and here only that I encountered *Rhyncostruthus percivali yemenensis*, invariably feeding on the sessile fruit of the "amk" (a four-angled, short-spined, euphorbiaceous bush). I noticed this same habit on the Dthala plateau (towards Kataba) in 1902 and, in 1900, in the Yeshbum valley, where I collected the type of the species. The bird seems to be of rare occurrence and difficult to approach, except when actually feeding. I never saw it except when the "amk" was in fruit (late winter). Passing up the road again in June, I saw nothing of it, though I kept a sharp look-out.

I left Wasil early in March for Hajeilah, where I stayed till the end of April. Here I secured types of all birds I saw (barring obviously familiar species as crows and vultures), except a small black eagle that roosts in tall trees.

I occasionally heard an *Œdicnemus* at night whistling across the mud-flats of the Hejjan after a spate had come down from the hills. I returned to Hodeida in May.

By now the political aspect was getting serious, even near Hodeida. Bura was isolated and Reima in revolt. I was refused both districts politely but firmly, so took advantage of the Vali's return up-country after a special mission to ask for Sok-al-Khamis to be followed by a visit to Sanaa. I knew by then that the chances were against me or any other European being allowed to roam about the country, so meant to get as far in as I could.

I left Hodeida again for the interior on June 19. My journey up to Menakha need not be described again, except to note that, at Hajeilah, the erstwhile barren fallow was under heavy crops of millet and maize, while vegetation generally throughout the district was lush and dense, owing to the spring spates down the Hejjan and torrential thunderstorms *.

Beyond Menakha the terrain drops steeply down some 3000 feet to an extensive and intricate system of foot-hills and small kopjes, beyond which, eastwards, some 30 miles as the crow flies, rises the long wall-like ridge formed by the ranges of the central Yamen plateau.

On the western scarp of this system at an elevation of 7300 feet, is the village and post of Sok-al-Khamis. Here I collected several Lammergeyers, but did little with birds generally. The country is very barren and storm-swept; crops are scanty and natural cover scarce. The district is much over-shot by Turkish officers and men.

I reached Sanaa on Aug. 20, and though my visit had received the written sanction of the Vali, I was made the victim of a good deal of petty persecution by the city police. This is not unusual in the case of Europeans, especially British, who have stayed at Sanaa for any length of time without employment that Ottoman officialdom could understand.

I came to close quarters with the Vali, and was eventually allowed to stop until I had worked out the district, an escort and freedom of movement being granted.

The official attitude, though annoying, was not unnatural. The interior of Yamen (south of Asir) is practically in the

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* Hajeilah and Wasil get their rains in April and May; Menakha from April to July intermittently but plentiful. Sok-al-Khamis and Sanaa districts get their rainy season in July and August. The Tihama has only a few occasional showers in spring.

hands of the Imam by now, except in such districts as repudiate him and the Turks.

Both sides are suspicious of aliens and of each other, while my pursuits required a freedom of movement which was a constant source of anxiety to a Government that had to practise a conciliatory tribal policy. I soon saw that there was no chance of extending my expedition southwards along the inland plateau, and had long known that north and east were alike out of the question.

I therefore finished off the Sanaa district and returned to the coast, working the vicinity of Hodeida just before leaving in October 1913.

The present political situation in Yamen convinces me that it will be long before another naturalist is allowed to work a'field in the interior, and the coastal districts are now closed.

One other journey should be possible, viz., Hodeida to Mokha by dhow, and thence *via* Taiz up on to the inland plateau towards Ibb, Yerim, and Dhamar. This plateau culminates towards Yerim, in which district the Tiban and Bana rise to flow southwards to the sea in the Aden Protectorate. Yerim is 8860 feet above sea-level.

There yet remains Asir. This province cannot be worked with Ottoman credentials, yet it must be borne in mind that there is a Turkish maritime blockade of the Asiri coast.

In Asir the central plateau appears to break up into numerous ranges and isolated massifs, and desert tracts are more frequent inland. In such districts I should expect to find the Arabian Ostrich, as also in the desert north and east of Mareb. I know it occurs in Jauf.

The difficulty in penetrating any of the above-named regions is that the Turks will not let you try, and to temporarily evade officialdom is merely to run up against some semi-detached chieftain who would hand you back to the powers that be in order to curry favour while not omitting to "bleed" you first. The practical naturalist cannot tour in disguise under such conditions; his pursuits and impedimenta betray him to the sophisticated mind.

Yamen is not fanatical, it is this dual control that constitutes the real difficulty.

Unceasing vigilance and tact is, of course, required of anyone working among Moslem tribes until he can win their confidence and esteem, but to have to deal with the constant suspicion and intrigues of two antagonistic administrations calls for diplomacy as well, and may, at any moment, render further research impossible for reasons beyond the investigator's control.

List of localities at which collections were made.

Menakha,	7500 ft.,	from	18 Dec. 1912	to	1 Feb. 1913.
Wasil,	4200 ft.,	,,	18 Feb. 1913	,,	6 Mch. 1913.
Hajeilah,	2080 ft.,	,,	10 Mch. 1913	,,	17 Apl. 1913.
Sok-al-Khamis,	7300 ft.,	,,	11 July 1913	,,	15 Aug. 1913.
Sanaa,	7600 ft.,	,,	20 Aug. 1913	,,	19 Sept. 1913.
Hodeida,	sea-level,	,,	6 Oct. 1913	,,	13 Oct. 1913.

List of Species.

Cinnyricinclus leucogaster.

Turdus leucogaster Gmelin, Syst. Nat. i. 1789, p. 819: Whydah, West Africa.

a–c. ♂ ♀ [♀]. Hajeilah, 2080 ft. 2–17. iv. 13.

"Another dashing denizen of tall timber is the Glossy Starling, with his roving yellow-ringed eye, his plum-coloured suit, and his smart white waistcoat."

This Starling has not previously been recorded from southern Arabia, but there are five examples obtained on a former occasion by Mr. Bury in the Aden Protectorate, viz.:—2 ♂, El Kubar, Amiri dist., 2 & 5. v.; ♀, Azraki ravine, 13. v.; ♀, El Haut, 16. v.; and ♀, Ichaf, Amiri dist., 1. x. It is doubtless a resident.

It has a wide distribution from southern Arabia to western Africa and south to Nandi in British East Africa.

Hagiopsar tristrami hadramauticus.

Pilorhinus hadramauticus Lorenz u. Hellmayr, Orn. Monatsb. ix. 1901, p. 30; Yeshbum, S. Arabia.

Lorenz & Hellmayr, 1901, p. 231, 1907, p. 104; O.-Grant, 1901, p. 54; id. Ibis, 1901, p. 518.

a–d. 2 ♂, 2 ♀. Menakha, 7000–7500 ft. 1. i.–1. ii. 13.
e. ♀. Wasil, 4000 ft. 28. ii. 13.

The Red-winged Spreuw of southern Arabia is very close to that of Palestine, and is certainly not more than subspecifically distinct. In size and general coloration the two cannot be distinguished, but the rufous of the primaries is distinctly darker in the Arabian bird, and, as a rule though not constantly, the primary-coverts of the Palestine form are dusky and rufous while those of the Arabian form are entirely black.

There is a good series of each of the forms in the British Museum in addition to those listed above, which seem to show that they are not migratory from Palestine to south Arabia as supposed by Mr. O.-Grant, viz.:—

H. t. tristrami.—Jericho and Ain Fishkhat, January. (*Tristram*); Petra, April; and S.E. of Dead Sea, May (*Carruthers*).

H. t. hadramauticus.—Yeshbum, December (*Percival*); Amiri dist., January, February, March; and Yemen, January, February (*Bury*).

Ploceus (Xanthophilus) galbula.

Ploceus galbula Rüppell, N. Wirbelth. 1835, p. 92, pl. 32. fig. 2: Modat valley, Abyssinian coast.

Yerbury, 86, p. 18, 96, p. 27; Barnes, 93, p. 80; O.-Grant, 1900, p. 246; Lorenz & Hellmayr, 1901, p. 232.

a, b. ♂, ♂ imm. Wasil, 4000 ft. 26–28. ii. 13.
c, d. ♂?, ♀. Hajeilah, 2080 ft. 11–13. iii. 13.
e, f. ♂, ♂ imm. Sok-al-Khamis, 7000 ft. 11. vii. 13.

This Weaver, also found throughout the Egyptian Soudan, Abyssinia and Somaliland, is a common bird in southern Arabia. Barnes found it nesting throughout the year at Aden and gives a good account of its breeding-habits.

I find a considerable amount of variation in the distribution of the chestnut-red of the face and also in the depth of the colour, which sometimes is almost black, but I can see no constant distinction between the African and Arabian birds. There is a good series in the British Museum from Aden and the neighbourhood as well as from north-eastern Africa.

Estrilda rufibarba.

Habropyga rufibarba Cabanis, Mus. Hein. 1851, p. 169: Arabia.

Yerbury, 86, p. 18, 96, p. 27; Shelley, Ibis, 1886, p. 334; Barnes, 93, p. 82; O.-Grant, 1900, p. 245.

a, *b*. ♂ ♀.	Menakha, 7000 ft.	28. xii. 12.
c–f. 2 ♂, 2 ♀.	Wasil, 4000 ft.	27. ii.; 3. iii. 13.
g. ♀.	Sok-al-Khamis, 7000 ft.	11. vii. 13.

"Iris dull dark brown, bill black with a line of red along the lower edge of the upper jaw, feet blackish; length of male in flesh 10·5. Crops full of grass seeds."

A note on the example "*c*," dated 27 Febr., states: "an influx of these little finches occurred to-day from below working up hill through the coffee."

There seems to be no appreciable difference in the sexes. Five other examples in the British Museum are as follows:—2 Lahej, i. 88 (*Yerbury*); 1 Aden (*Chevalier*); 2 El Kubar, Amiri distr., 11. vii. (*Bury*).

Rhynchostruthus percivali yemenensis.

Rhynchostruthus percivali yemenensis O.-Grant, Bull. B. O. C. xxxi. 1913, p. 112: Yemen.

a, *b*. ♂ ♀. Wasil, 4000 ft. 3. iii. & 25. ii. 13. [Types of the subspecies.]

A note on the ticket states that the male was feeding on cactus and the crop was full of the seeds. The stomach of the female also contained small seeds.

This Grosbeak is closely allied to *R. percivali*, also described by Mr. O.-Grant from southern Arabia. It differs in having a more restricted black patch on the face and chin which does not extend on to the frontal region as in *R. percivali*. Of this latter form there are now four examples in the British Museum, all obtained by Mr. Bury, as follows:—Yeshbum, Hadramut, 17. i. 00 (Type); ♂, El Kubar, Amiri dist., 14. xii.; ♂ ♀ Ichaf, Amiri dist., 7. i.

Petronia dentata.

Xanthodira dentata Sundevall, Œfv. Ak. Förh. 1850, p. 127 : N.E. Africa.

a–e. 4 ♂, 1 ○. Hajeilah, 2080 ft. 10. iii. to 4. iv. 13.

One male (collected March 10) has the crown greyish-brown, bordered by a rufous eyebrow which merges into the rufous-brown back. The yellow breast-spot is faint and ill-developed. In this bird the "iris is pale brown, the bill (both mandibles) is black, and the legs blackish." The other three males have the lower mandible quite pale with only the tip black, while the crown and back are dull brown and the eyebrow is buffy white. They are very different-looking birds to the one first described, which is apparently a young bird or one not in breeding-plumage.

Of this species, though not previously recorded from Arabia, there is a good series of nine males in the British Museum, obtained in various localities in the Amiri district of southern Arabia by Mr. Bury in 1902, between August and November. The same two types are in this series as in the one from Yemen. The females, of which there are five in the Amiri series, all resemble the non-breeding or young males.

The range of this Rock-Sparrow extends across north-east Africa from Abyssinia and the Anglo-Egyptian Soudan to the Gambia and Portuguese Guinea.

Passer domesticus buryi.

Passer domesticus buryi Lorenz u. Hellmayr, Journ. Ornith. 1901, p. 233 : Yeshbum, S. Arabia.

Yerbury, 86, p. 182, 96, p. 28 ; Barnes, 93, p. 83 ; Hawker, 98, p. 375 ; O.-Grant, 1900, p. 246 ; id. Ibis, 1901, p. 520 ; Lorenz & Hellmayr, 1901, p. 233, 1907, p. 106.

a–g. 4 ♂, 3 ♀. Menakha, 7000–7500 ft. 23. xii. 12 to 21. i. 13.

h–j. 2 ♂, 1 ♀. Hajeilah, 2080 ft. 19. iii. 13.

k–n. 2 ♂, 1 ♂ imm., 1 ♀. Sanaa, 7600 ft. 3–17. ix. 13.

The form of the Sparrow found in southern Arabia seems very close to the Indian subspecies (*P. d. indicus*), from which it differs in the absence, as a rule, of the chestnut behind the eye and across the nape: the general colour is also paler, and the crown has a wash of pale brown over the ashy grey. It is a common bird in the Aden Protectorate.

Poliospiza menachensis.

Poliospiza menachensis O.-Grant, Bull. B. O. C. xxxi. 1913, p. 90: Yemen.

a, b, ♂ ♀. Menakha, 7000 ft. 31 & 20. i. 13. [Types of the species.]

c–h. 5 ♂, 1 ♀. Menakha, 6000–7500 ft. 21. xii. 12 to 31. i. 13.

i. ♀. Wasil. 4000 ft. 27. ii. 13.

k, l. ♂ ♀. Sanaa, 7600 ft. 8 & 10. ix. 13.

This Seed-eater, judging from the number procured, must be fairly abundant in the highlands of Yemen. Its nearest ally, as Mr. O.-Grant has pointed out, is *P. reichardi* of eastern and north-eastern Africa, from which, however, it can be at once distinguished by its smaller bill and by the absence of the white eyebrow.

Serinus uropygialis.

Carpodacus uropygialis Heuglin, Orn. N.-O. Afr. i. 1871, p. 642: Qonfuda or Kunfuda, Arabia.

Serinus rothschildi O.-Grant, Bull. B. O. C. xiii. 1902, p. 21: Haushabi dist., S. Arabia.

Lorenz & Hellmayr, 1901, p. 234, 1907, p. 108.

a–e. 2 ♂, 3 ♀. Menakha, 7000 ft. 28. xii. 12 to 15. i. 13.

f, g. ♂ ♀. Wasil, 4000 ft. 26–27. ii. 13.

Reichenow and Lorenz & Hellmayr identify this species with *Carpodacus uropygialis,* obtained by Hemprich and Ehrenberg from Kunfuda, a port on the Red Sea between Jiddah and Hodeida, and there seems to be little doubt that their decision is correct.

The types of Mr. O.-Grant's *S. rothschildi* were obtained by Mr. Bury on the borders of the Aden Protectorate and Yemen.

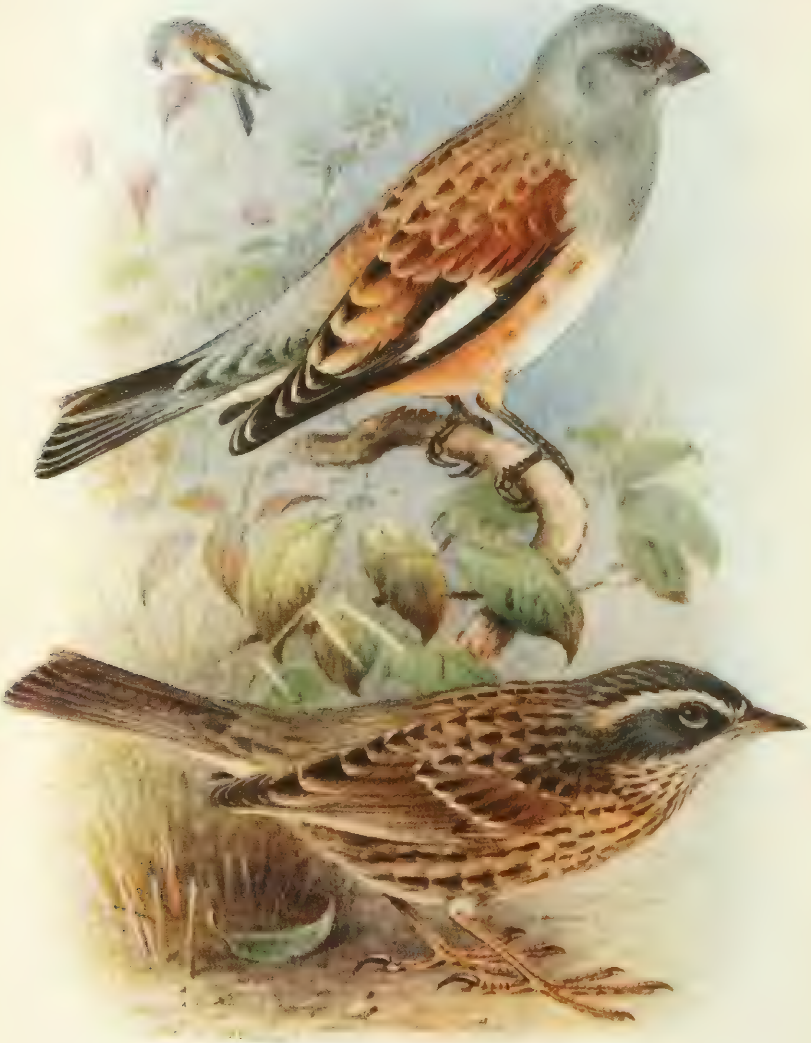

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Fig. 1. PSEUDACANTHIS YEMENENSIS.
Fig. 2. ACCENTOR FAGANI.

Pseudacanthis yemenensis. (Plate IV. fig. 1.)

Pseudacanthis yemenensis O.-Grant, Bull. B. O. C. xxxi. 1913, p. 89: Menakha, Yemen.

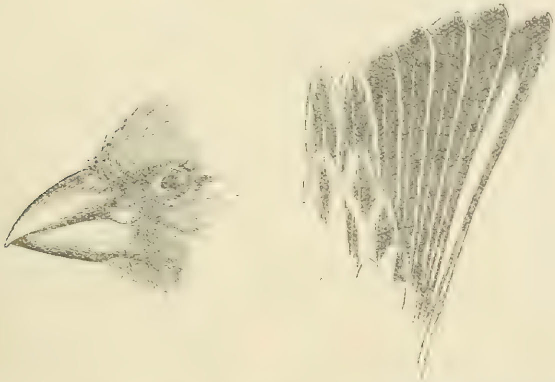
a, b. ♂ ♀. Menakha, 7000–8500 ft. 16. i. 13 & 30. xii. 12. [Types.]

c–g. 3 ♂, 2 ♀. Menakha, 7000–8500 ft. 23. xii. 12 to 31. i. 13.

h. Juv.? Sok-al-Khamis, 7000 ft. 23. vii. 13.

"This little bird is often met with among the orchard terraces of Menakha, pouring out its soul in song. It looks like a sparrow and sings like a skylark. It is much in demand at Sanaa as a cage-bird; though fairly common in the district it favours, it is not widely distributed. Its vertical range is from 7000 to 8000 ft."

Text-figure 1.



Side of the head and tail from above of *Pseudacanthis yemenensis.*

For this Finch Mr. Ogilvie-Grant found it necessary to make a new genus, the principal characters of which are as follows:—Bill short but rounded and swollen as in *Serinus*, the lower mandible deeper than the upper; the cutting-edge of the upper mandible is not straight as in *Serinus*, but strongly decurved as in *Alario*. The nostrils are concealed by overhanging plumes. The outer (ninth) primary of the wing is distinctly shorter than the 6th, 7th, and 8th, but longer than the 7th. In this respect *Pseudacanthis* differs from *Serinus*, *Alario*, and *Linaria*. The legs and feet are delicate and slender.

The plumage-characters are also very distinct from most of the other Finches. The inner primary quills from the 1st to the 6th have a basal patch of white, and the outer tail-feathers have a conspicuous band of white running along the inner web nearly to the tip; the pair next the outer ones have the white on the shafts only.

Altogether this little Finch, which appears to be confined to the mountains of the Yemen, presents very distinct characters, as is shown by the coloured plate (IV.) and the cut of the head and tail.

The example collected at Sok-al-Khamis in July is, in my opinion, a young bird and is very different at first sight from the adult. The following is a description:—Above earthy-brown with darker centres to the feathers, giving a streaked appearance throughout, including the crown and the nape; wings and tail as in the adult, but the white patches slightly reduced. Below whitish slightly washed with brown, streaked with dark brown. In general appearance not unlike *Poliospiza menachensis*, but at once distinguished by the white on the wings and tail.

Emberiza hortulana.

Emberiza hortulana Linnæus, Syst. Nat. 1758, p. 177: Sweden.

a–c. 2 ♂, 1 ♀. Menakha, 7000–7500 ft. 31. xii. 12 to 6. i. 13.

The Ortolan is found throughout Europe and western Asia as far as Mongolia and the confines of India. In winter it goes south to Abyssinia, but has not hitherto been recorded from Arabia so far as I am aware.

Emberiza cinerea semenowi.

Emberiza (Hypocentor) semenowi Sarudny, Ornith. Jahrb. xv. 1904, p. 217: Arabistan, Persia.

Emberiza citriniventris P. L. Sclater, Bull. B. O. C. xvi.

1905, p. 39: id. Ibis, 1906, p. 313, pl. xv.: Kuryatein, Syrian desert.

a. ♂. Menakha, 7000 ft. 26. xii. 12.
b. ♂. Wasil, 4000 ft. 6. iii. 13.

This rare Bunting has only been known of recent years. The types were obtained in February and March in Arabistan in southern Persia, and the type of *E. citriniventris* by Mr. Carruthers in April. In addition there are two examples in the British Museum collected at Bushire in April by Messrs. Palmer and Cummings respectively, and one also obtained in April at Mal Amir in western Persia by Mr. Woosnam.

The two Bushire examples are both sexed female, and they differ from the other four examples in the British Museum (sexed male) in having the crown streaked like the back and hardly showing any of the greenish wash so noticeable in the males, while below the throat and chest also show distinct traces of streaks, absent in the case of the males.

Fringillaria striolata.

Fringilla striolata Lichtenstein, Verz. Doubl. 1823, p. 24: Ambukol, Soudan.

O.-Grant, 1900, p. 247.

a. ♂. Menakha, 7000 ft. 18. i. 13.

A single example of the Striolated Rock-Bunting was obtained by Bury in Yemen, and there is another example from the Abian district in the Aden Protectorate collected by Percival and recorded by Ogilvie-Grant. This record is wrongly referred by Reichenow to *F. arabica*.

The species ranges from the Soudan to western India. Whether any distinction can be drawn between the birds of India and those of the Anglo-Egyptian Soudan is uncertain, as there are no examples in the British Museum from the Soudan proper, but examples from Somaliland are certainly darker than those from India and have been separated by Sharpe under the name of *Fringillaria saturatior*.

On the whole the two examples from Arabia and one in the Butler Collection from Erkowit in the mountains behind Port Soudan, seem to be closer to those from Somaliland than to those from India; but until it is possible to examine examples from nearer the type-locality of Lichtenstein's original species, I prefer to use the name *F. striolata* for the Arabian form.

Fringillaria arabica.

Fringillaria arabica Lorenz & Hellmayr, Orn. Monatsb. x. April 1902, p. 55 : Yeshbum, Arabia.

Fringillaria dthalæ O.-Grant, Bull. B. O. C. xii. June 1902, p. 80 : Dthala, Arabia.

Lorenz & Hellmayr, 1901, p. 235 ; 1907, p. 109, pl. fig. 1.

a. ♂. Menakha, 7000 ft. 27. xii. 12.
b–f. 2 ♂, 3 ♀. Wasil, 4900 ft. 21–24. ii. 13.
g. ♀. Sok-al-Khamis, 7000 ft. 18. vii. 13.

The Arabian Rock-Bunting is very close to the Socotran one, and only differs from it in having a longer tail and a more speckly white crown. It was described by Lorenz & Hellmayr and also by Ogilvie-Grant from examples collected by Bury, but Lorenz & Hellmayr's description has two months' undoubted priority.

Calandrella brachydactyla brachydactyla.

Alauda brachydactyla Leisler, Ann. Wetterau Ges. iii. 1814, p. 357 : S. France.

a. ♂. Hodeida (sea-level). 6. x. 13.

Dr. Hartert, who has been good enough to examine this Short-toed Lark for me, is satisfied that it is the typical form, and believes that it is a migrant or winter visitor to southern Arabia.

Mirafra cantillans.

Mirafra cantillans Blyth, Journ. As. Soc. xiii. 1844, p. 960 : Madras.

Barnes, 1893, p. 84 ; Grant, 1900, p. 248.

a–d. 2 ♂, 2 ♀. Hajeilah, 2080 ft. 11. iii. 13 to 3. iv. 13.

"♀. Upper mandible black, lower grey, iris brown, feet pale horny brown."

The Singing Bush-Lark has a wide distribution from Somaliland and Abyssinia eastwards to India. I can detect no distinction between the Abyssinian, Arabian, and Indian examples.

Galerida cristata tardinata.

Galerida cristata tardinata Hartert, Vög. pal. Fauna, i. 1904, p. 235: W. Hadramaut, S. Arabia.

Yerbury, 86, p. 18. 96, p. 29; Barnes, 93. p. 83; O.-Grant, 1900, p. 247; Lorenz & Hellmayr, 1901, p. 236, 1907, p. 109.

a–h. 5 ♂, 3 ♀. Menakha, 7000–7500 ft. 18. xii. 12 to 29. i. 13.

i. ♂. Sok-al-Khamis, 8000 ft. 11. viii. 13.

j. ♂. Sanaa, 7600 ft. 4. xi. 13.

Dr. Hartert has also examined these examples of the Crested Lark and identifies them with his subspecies described from Hadramaut.

Ammomanes deserti saturata.

Ammomanes saturatus O.-Grant, Nov. Zool. vii. 1900, p. 249; N. of Lahej, S. Arabia.

Lorenz & Hellmayr, 1901, p. 236, 1907, p. 109.

a–d. 3 ♂, 1 ♀. Sanaa, 7600 ft. 9. ix. 13.

"♂. Iris sepia-brown, upper mandible blackish, lower pale brown, feet horny brown."

The Yemen examples of the Desert-Lark are lighter-coloured and more sandy than those from the Amiri district also obtained by Bury; the type from Lahej is somewhat intermediate, but all are distinctly darker and more isabelline than the true *A. deserti.* It is probable that the colour of the soil has a good deal to do with the variation in plumage in Larks and other ground-living birds.

Motacilla alba.

Motacilla alba Linnæus, Syst. Nat. 1758, p. 185: Sweden.

Yerbury, 86, p. 17, 96, p. 25; Barnes, 93, p. 78; O.-Grant, 1900, p. 250; Lorenz & Hellmayr, 1901, p. 236, 1907, p. 110.

a–c. 2 ♂. 1 ♀. Menakha, 7000–7500 ft. 27. xii. 12 to 21. i. 13.
d. ♀. Hajeilah, 2080 ft. 13. iii. 13.

Motacilla flava.

Motacilla flava Linnæus, Syst. Nat. 1758, p. 185: Sweden.

O.-Grant, 1900, p. 250; Lorenz & Hellmayr, 1907, p. 110.

a, b. ♂ ♀. Hajeilah, 2080 ft. 7–12. iv. 13.
c–d. 2 ♂, 2 ♀. Sanaa, 7600 ft. 3–16. ix. 13.

Motacilla boarula melanope.

Motacilla melanope Pallas, Reise Prov. Russ. Reichs, iii. 1776, p. 696: Dauria.

O.-Grant, 1900, p. 250.

a–c. 2 ♂, 1 ♀. Menakha, 7000–7500 ft. 26. xii. 12 to 8. i. 13.

Anthus campestris.

Alauda campestris Linnæus, Syst. Nat. 1758, p. 166: Sweden.

Lorenz & Hellmayr, 1901, p. 236, 1907, p. 110.

a. ♀. Sanaa, 7600 ft. 8. ix. 13.

The Tawny Pipit was not included in Mr. O.-Grant's list, but was obtained from Arabia by Hemprich & Ehrenberg as recorded by Rüppell and Heuglin.

Anthus trivialis.

Alauda trivialis Linnæus, Syst. Nat. 1758, p. 169: Sweden.

O.-Grant, 1900, p. 250.

a. ♂. Sanaa, 7600 ft. 15. ix. 13.
b. ♀. Hodeida (sea-level). 13. x. 13.

Anthus rufulus cinnamomeus.

Anthus cinnamomeus Rüppell, Neue Wirbelth. 1835, p. 103: Samien, Abyssinia.

a. ♀. Hajeilah, 2080 ft. 13. iii. 13.
b. ♂. Sok-al-Khamis, 8000 ft. 7. viii. 13.
c–g. 5 ♂. Sanaa, 7600 ft. 3–17. ix. 13.

This Pipit does not appear to have been previously noticed in southern Arabia. It has a wide distribution throughout eastern and north-eastern Africa however, while the Indian Pipit (*A. r. rufulus*), which only differs in its slightly smaller size, is found in India. The Yemen examples match those from east and north-east Africa, and the wings average 86 mm.

Anthus leucophrys captus.

Anthus leucophrys captus Hartert, Vög. pal. Fauna, i. 1905, p. 269: Palestine.

a–j. 6 ♂, 4 ♀. Menakha, 7000–8500 ft. 24. xii. 12 to 1. ii. 13.

k. ♂.	Wasil, 4000 ft.	26. ii. 13.
l. ♀.	Hajeilah, 2080 ft.	3. iv. 13.
m–o. ♂, ♀, o.	Sok-al-Khamis, 7000 ft.	18–19. vii. 13.

"♀. Upper mandible dark slate, lower paler with a purplish tinge, feet buff. Stomach contained remains of small orthoptera."

This Pipit ranges, according to Hartert, from Palestine to the Indus valley. It has never previously been recorded from southern Arabia, but there is a considerable series in the British Museum obtained some years back by Bury from various localities in the Amiri district throughout the year, fairly proving that the species is a resident at any rate in southern Arabia. It differs from *A. l. sordidus*, the form found in north-eastern and eastern Africa, in its much paler coloration below, while the back always shows traces of the striping which is quite absent in the adult *A. l. sordidus*.

Cinnyris oseus.

Cinnyris osea Bonaparte, Comptes Rend. Acad. vol. 42, 1856, p. 765: near Jericho.

O.-Grant, 1900, p. 251; Lorenz & Hellmayr, 1901, p. 238, 1907, p. 112.

a–h. 5 ♂, 3 ♀. Menakha, 6000–7500 ft. 21. xii. 12 to 21. i. 13.

i, j. 2 ♂.	Wasil, 4000 ft.	22–25. ii. 13.
k, l. 2 ♀.	Hajeilah, 2080 ft.	17. iii. to 7. iv. 13.
m. ♂.	Sok-al-Khamis, 7000 ft.	19. vii. 13.

These birds, as well as a series previously obtained by Bury in the Amiri district, are all quite similar to those from Palestine in the British Museum. They appear to breed in January, as a male from Menakha, dated 14. i. 13, is stated to have had the testes much enlarged.

Cinnyris habessinicus hellmayri.

Cinnyris habessinica hellmayri Neumann, Orn. Monatsb. xii. 1904. p. 29: S. Arabia.

O.-Grant, 1900, p. 250: Lorenz & Hellmayr, 1901, p. 238, 1907, p. 111.

a. ♂.	Menakha, 6000 ft.	21. xii. 12.
b-*d*. 2 ♂, ♀.	Hajeilah, 2080 ft.	15. iii. 13.
e. ♂ juv.	Sok-al-Khamis, 7000 ft.	19. vii. 13.

This Sunbird when previously obtained by Percival and Bury was considered by O.-Grant and Lorenz & Hellmayr to be identical with the Abyssinian bird. It is, however, separable from the typical form, as was pointed out by Neumann, by the more restricted red chest-band, which is slightly more carmine and less scarlet in shade and also more spotted with blue metallic feathers. The crown of the head appears to me to have a more violet and less coppery sheen in the Arabian than in the Abyssinian bird. This is the reverse of what is stated by Neumann. I am not able to detect any difference in the yellow of the breast-tufts, which are said by Neumann to be paler.

The young male from Sok-al-Khamis is similar to the female above, but the metallic feathers are just commencing to show on the crown and nape; below, the throat and chest are already clothed with the metallic feathers, the red is just showing on the chest-band, and the feathers of the abdomen are still edged with hoary white.

A note on one of the males from Menakha reads: "plentiful at this altitude (*i. e.* 6000 ft.), but local, chiefly on flowering bushes in valleys, does not range as high as the lesser Nectarinia."

In size the Arabian and African birds seem hardly to differ, the average length of the wing being 70 mm. in the former, and perhaps a trifle shorter (68 mm.) in the latter.

Zosterops abyssinica arabs.

Zosterops arabs Lorenz u. Hellmayr, Orn. Monatsb. ix. 1901, p. 31 : Yeshbum, S. Arabia.

Lorenz & Hellmayr, 1901, p. 236, 1907, p. 11, pl. fig. 2 ; O.-Grant, Ibis, 1901, p. 529.

a–h. 4 ♂, 3 ♀, 1 ○. Menakha, 6000–7500 ft. 21. xii. 12 to 30. i. 13.

i–k. ♂, 2 ♀. Wasil, 4000 ft. 19. ii. 13 to 4. iii. 13.

"*Male.* Iris yellowish brown, bill dark horny brown, feet pale horny; in a female the lower mandible seems a little paler." Male: length in flesh 110 mm., wing 57, tail 42, culmen 9·0, tarsus 17·0.

The Arabian White-eye is very close to that of north-east Africa, but the brown wash on the breast and flanks is distinctly of a darker shade and the yellow of the throat is perhaps slightly paler; the size appears to be the same, six Arabian males averaging 57 and six African also 57. I cannot see that the chin is white, as stated by Lorenz & Hellmayr.

There are four other examples in the British Museum previously obtained by Bury as follows:—♂, Gerba, December; ♀, Hamiah, August; ♀ & ○, Dthala, March and February.

Lanius minor.

Lanius minor Gmelin, Syst. Nat. i. 1788, p. 308 : Italy.

Lanius yemenensis O.-Grant, Bull. B. O. C. xxxiii. 1914, p. 91.

a. ♀. Sanaa, 7600 ft. 3. ix. 13.

b, c. ♂ imm. „ „ 6–8. ix. 13.

These Shrikes, which Mr. O.-Grant believed to be a new species, appear to me after careful examination and comparison to be immature examples of the Lesser Grey Shrike. This species can be at once distinguished from all other Shrikes by the shortened outer primary. There is another still younger bird in the British Museum, collected by Bury at Ichaf, in the Amiri district of southern Arabia, on October 4. This is so young that it appears probable that it was bred there. In this case the Lesser Grey Shrike might well be a resident in southern Arabia.

Lanius buryi.

Lanius buryi Lorenz & Hellmayr, Orn. Monatsb. ix. 1901, p. 39: Yeshbum, S. Arabia.

Lanius arabicus O.-Grant, Bull. B. O. C. xv. 1905, p. 78: Amiri distr., S. Arabia.

Lorenz & Hellmayr, 1901, p. 238, 1907, p. 112.

a.	♀.	Wasil.	20. ii. 13.
b.	♀.	Sanaa, 7600 ft.	8. ix. 13.

These Shrikes are quite similar to the type of *L. arabicus*, and to a large series of other examples obtained previously by Bury. There can also be no hesitation in identifying *L. arabicus* with *L. buryi*. The bird from Sanaa is in immature dress, and has the tips of the secondaries and coverts washed with pale brown; the back also shows traces of pale brown feathers, and the lower side is sooty not bluish grey, the chin and throat being almost white. It is undoubtedly a resident.

Phoneus niloticus.

Enneoctonus niloticus Bonaparte, Rev. Zool. 1853, p. 439: White Nile.

Lanius rufus auct.

a.	♀.	Hajeilah, 2080 ft.	11. iii. 13.
b–e.	♂, 3 ♂ imm.	Sanaa, 7600 ft.	5–17. ix. 13.

The Eastern Woodchat Shrike was obtained many years ago by Hemprich and Ehrenberg at Kunfuda, on the Red Sea Coast, but does not appear to have been met with since in Arabia. Whether it breeds in southern Arabia is uncertain, but eggs have been taken by Zarudny in Arabistan and southern Persia, and it certainly winters in north-east Africa, if it does not breed there.

Fiscus nubicus.

Lanius nubicus Lichtenstein, Verz. Doubl. 1823, p. 47: Nubia.

Yerbury, 86, p. 16, 96, p. 21; O.-Grant, 1900, p. 251; Lorenz & Hellmayr, 1901, p. 239, 1907, p. 113.

a–d. 3 ♂, 1 ♀. Hajeilah, 2080 ft. 10–14. iii. 13.
e. ♂. Sanaa, 7600 ft. 16. ix. 13.

The Masked Shrike may winter in southern Arabia, but is probably only a transient on migration between Persia and Asia Minor and north-east Africa.

Enneoctonus collurio.

Lanius collurio, Linnæus, Syst. Nat. 1758, p. 94: Sweden.

Yerbury, 1896, p. 21; O.-Grant, 1900, p. 252.

a. ♂. Hajeilah, 2080 ft. 11. iv. 13.
b, c. ♀, ♂ imm. Sanaa, 7600 ft. 13–15. ix. 13.

The Red-backed Shrike is probably only a passage migrant through southern Arabia.

Otomela phœnicuroides.

Otomela phœnicuroides Schalow, J. f. O. 1875, p. 148: Turkestan.

O.-Grant, 1900, p. 252.

a, b. ♂ ♀. Hajeilah, 2080 ft. 18. iii. & 7. iv. 13.

"Bill slate, feet dark vandyke-brown."

Tschagra percivali.

Telephonus percivali O.-Grant, Bull. B. O. C. x. 1900, p. 50: N. of Lahej, S. Arabia.

O.-Grant, 1900, p. 251.

a–c. 2 ♂, 1 ♀. Wasil, 4000 ft. 20–28. ii. 13.
d. ♂. Hajeilah, 2080 ft. 10. iii. 13.

In addition to the type-specimen, there are four other examples in the British Museum obtained by Bury in the Amiri district of southern Arabia. The species is doubtless a resident.

Agrobates familiaris.

Sylvia familiaris Ménétries, Cat. rais. Cauc. 1832, p. 32: Kur, in the Caucasus.

O.-Grant, 1900, p. 253.

a–e. 2 ♂, 2 ♀. Sanaa, 7600 ft. 6–9. ix. 13.

Previously obtained in southern Arabia (Aug. to Oct.) by Bury.

Acrocephalus palustris.

Sylvia palustris Bechstein, Orn. Taschenb. 1803, p. 166: Germany.

a. ♂. Hajeilah, 2080 ft. 11. iv. 13.

The Marsh-Warbler has not been previously recorded from southern Arabia, though it breeds as far east as Persia and winters in tropical Africa. There is, however, an example in the British Museum, collected by Mr. Bury in the Amiri district of southern Arabia in October some years ago. It is probably a transient visitor on migration.

Cisticola cisticola aridula.

Cisticola aridula Witherby, Bull. B. O. C. xi. 1900, p. 13: White Nile S. of Khartoum.

Yerbury, 1896, p. 25; O.-Grant, 1900, p. 255.

a–e. 3 ♂, 2 ♀. Hajeilah, 2080 ft. 11–18. iii. 13.

"Length in flesh, ♂ 108 to 112, ♀ 106 mm. Iris pale clay-brown; bill dark brown, lower mandible slightly paler; feet reddish brown."

These examples are quite similar to those obtained by Messrs. Percival and Dodson at Lahej, and also to those in the British Museum from Abyssinia and the Soudan. There is no trace of the reddish-brown band on the basal side of the subterminal black band of the outer tail-feathers. I am inclined to identify the Arabian form with Witherby's *C. aridula,* always remembering that the type of Witherby's species is an abnormally pale and washed-out example.

Hippolais languida.

Carruca languida Hemprich & Ehrenberg, Symb. Phys. 1833, ff. cc.: Syria.

O.-Grant, 1900, p. 254.

a. ♀. Hajeilah, 2080 ft. 4. iv. 13.

"Length in flesh 156 mm.; bill, upper mandible blackish, lower paler brown; legs greyish brown."

This species breeds from Syria to Turkestan and Afghanistan, and also at Fao on the Persian Gulf, where Mr. W. D. Cuming took a nest in August. It has been obtained in southern Arabia in April, August, and September, and possibly breeds there also. It is said to winter in British East Africa.

Hippolais pallida.

Carruca pallida Hemprich & Ehrenberg. Symb. Phys. 1833, ff. bb.: Egypt and Nubia.

O.-Grant, 1900, p. 254

a. ♂. Hajeilah, 2800. 17. iii. 13.
b–d. 2 ♂, 1 ♀. Sanaa, 7600 ft. 3–4. ix. 13.

This Warbler, which breeds from Turkey to Turkestan and Syria, appears to pass through southern Arabia on migration, and to winter in Africa from Egypt to British East Africa.

Sylvia communis.

Sylvia communis Latham, Gen. Suppl. i. 1787, p. 287: England.

O.-Grant, 1900, p. 252; Lorenz & Hellmayr, 1901, p. 239, 1907, p. 113.

a. ♀. Hajeilah, 2080 ft. 5. iv. 13.
b. ♂. Sanaa, 7600 ft. 10. ix. 13.

The Whitethroat had previously been obtained by Bury in southern Arabia in September.

Sylvia communis icterops.

Sylvia icterops Ménétries, Cat. rais. Cauc. 1832, p. 34: Talysch.

a. ♂. Sanaa, 7600 ft. 5. ix. 13.

This single example seems referable to the eastern form of the Whitethroat recognized by Hartert. The back is duskier and more greyish in tone, the rufous of the secondaries is paler, and the crown much darker, almost black in fact, as compared with the typical European Whitethroat. It matches very well a Whitethroat in the British Museum, from the Elburz Mountains, obtained by Woosnam on 1 May, 1907, and certainly seems distinct enough to be recognized.

Sylvia carruca.

Motacilla carruca Linnæus, Syst. Nat. 1758, p. 184: Sweden.

a, b. ♂ ♀. Hajeilah, 2080 ft. 12. iii. & 11. iv. 13.

Though the Lesser Whitethroat has not been previously recorded from southern Arabia, there is another example, also obtained by Bury, in the British Museum labelled "Gerba, Amiri distr. S. Arabia—11 October." It no doubt passes through Arabia on its way to its winter quarters in north-east Africa.

Sylvia blanfordi.

Sylvia blanfordi Seebohm, Proc. Zool. Soc. 1878, p. 979: Rairo, Abyssinia.

O.-Grant, 1900, p. 253.

a ♂. Wasil, 1000 ft. 3. iii. 13.

There is a good series of this species from various localities in southern Arabia in the British Museum taken throughout the year, so we may presume it is a resident. It occurs also on the opposite coast of Africa in the Soudan, Abyssinia, and Somaliland.

Sylvia atricapilla.

Motacilla atricapilla Linnæus, Syst. Nat. 1758, p. 187: Sweden.

O.-Grant, 1900, p. 252.

a–c. ♂, 2 ♀. Hajeilah, 2080 ft. 1–16. iv. 13.

One example obtained by Bury in Shaik Othman in September had been previously recorded from Arabia.

Phylloscopus trochilus.

Motacilla trochilus Linnæus, Syst. Nat. 1758, p. 188: England (*Hartert*).

O.-Grant, 1900, p. 253.

a. ♀. Hajeilah, 2800 ft. 8. iv. 13.

Messrs. Percival and Dodson procured the Willow-Warbler in September. It probably passes through Arabia on migration only. It winters throughout Africa as far south as Cape Colony.

Phylloscopus collybita abietinus.

Sylvia abietina Nilsson, Kgl. Vet.-Akad. Handl. 1819, p. 115: Sweden.

a. ♂. Menakha, 7000 ft. 28. xii. 12.

The Chiffchaff does not appear to have been previously recorded from Arabia, though noticed by Messrs. Forbes & O.-Grant in Socotra, and common in winter in eastern and north-east Africa. The example is rather a large one (wing 62 mm.), and may perhaps be referred to the eastern subspecies if it can be maintained.

Scotocerca inquieta buryi.

Scotocerca buryi O.-Grant, Bull. B. O. C. xiii. 1902, p. 22: Amiri dist., S. Arabia.

a–c. 2 ♂, 1 ♀. Menakha, 7000 ft. 9. i. 13 to 1. ii. 13.

d. ○. Sok-al-Khamis, 7300 ft. 23. 7. 13.

Bury's Scrub-Warbler has been known up till now only from the single type, and the present series is most valuable as confirming the distinctness of this form at any rate as a subspecies. From the typical *S. inquieta*, the type-locality of which appears to be central Arabia, it is easily distinguished by its darker and richer coloration, especially below, and by the very distinct brown stripes on the chest: the last-named character also distinguishes it from the form found in Baluchistan, in which these stripes, if present, are pale and insignificant. This form, as pointed out by Hartert, should be known as *S. i. striata*, while Nicol's *S. i. innesi* appears to be indistinguishable from the typical form from Palestine. The July example is slightly paler and more worn-looking than the other birds, but not otherwise different.

The male of February 1 had thistle-down in its beak, and was nesting in the crevices of the stone-faced terraces.

The male of January 9 is marked "bill brown, iris pale yellow, feet very pale brownish; length in the flesh 115 mm."

The measurements of the male are: wing 49, tail 50, tarsus 21, culmen 9 mm. The female is identical in size and markings.

Prinia gracilis yemenensis.

Prinia gracilis yemenensis Hartert, Vög. pal. Faun. i. 1909, p. 609: Scheik Osman, Aden Protect.

Yerbury, 96, p. 25; Hawker, 98, p. 375; O.-Grant, 1900, p. 255.

a–e. 3♂, 1♀, 1○. Menakha, 7000 to 7500 ft. 19. xii. 12 to 23. i. 13.

f. ♀. Wasil. 18. ii. 13.
g. ♂. Hajeilah, 2080 ft. 1. iv. 13.
h. ♂. Sok-al-Khamis, 7000 ft. 11. vii. 13.
i, j. ♂ ♀. Sanaa, 7600 ft. 5–11. ix. 13.

The Arabian form of this species is distinguished by Hartert from that of Palestine and Egypt. I cannot see the distinguishing character of the broader black spots on the tail-feathers laid stress on by Hartert, but the general tone of the upper parts is somewhat greyer, and the edges of the wing-feathers appear to me to have a stronger wash of chestnut-brown in the Arabian subspecies, which is much closer to the Egyptian and Syrian *P. g. deltæ* than to *P. g. gracilis* of Nubia, which is much paler than either.

The bird appears to be common and a resident in southern Arabia, and the breeding bird has a black bill, the lower mandible in winter being quite pale.

This Grass-Warbler apparently breeds very early, as a male killed January 14 is marked "testes much enlarged."

Turdus atrigularis.

Turdus atrogularis, Temm. Man. d'Orn. 2nd ed. i. 1820, p. 169: Austria and Silesia.

Lorenz & Hellmayr, 1901, p. 240, 1907, p. 113.

a. ♀. Menakha, 7000 ft. 24. xii. 12.

"Bill—upper mandible dark slate, lower yellow-ochre; gape yellow. Length in flesh 245 mm. Note like the 'yaffle' of a Woodpecker."

This species, breeding in western Siberia and wintering in central Asia and northern India, has only once been previously obtained in Arabia. This was also a female taken by Bury at Yeshbum on January 4, and is recorded by Lorenz and Hellmayr. It is not known to visit Africa.

Turdus menachensis.

Turdus menachensis O.-Grant, Bull. B. O. C. xxxi. 1913, p. 86: Menakha, Yemen.

a, b. ♂ ♀. Menakha, 7000 ft. 28. xii. 12, 3. i. 13. [Types.]

c. ♀. Menakha. 28. i. 13.

d, e. ♂ ♀. Wasil. 17. ii. 13 & 5. iii. 13.

"Iris pale brown, bill and feet chrome-yellow, toes and orbital ring umber-brown; testes black. Length in flesh of ♂ type 270 mm."

"This Thrush may be found along the coffee gardens and scarped terraces of Menakha. He is a crafty customer, flicking across a narrow terrace to dive to one below, and finally sulking among the coffee."

A good series of five examples of this interesting Thrush was procured. Its most distinctive character is undoubtedly the length of the tail, while the dark streaks on the chest and the bright reddish rust-colour of the axillaries also help to distinguish it from any other form, as is pointed out by Mr. Ogilvie-Grant in his original description.

The following are the measurements in millimetres:—

	Wing.	Tail.
♂ type	125	123
♂	125	118
♀ type	115	110
♀	115	105
♀	115	106

Monticola solitarius solitarius.

Turdus solitarius Linn. Syst. Nat. 1758, p. 170: Italy.

Monticola cyanus auct.

Yerbury, 86, p. 16, 96, p. 22; Barnes, 93, p. 74; O.-Grant, 1900, p. 254; Lorenz & Hellmayr, 1901, p. 239, 1907, p. 113.

a–d. 3 ♂, 1 ♀. Menakha, 7500 ft. Dec.–Febr.
e. ♀. Wasil, 4000 ft. Febr.

"Iris dark brown, bill and feet black."

The Blue Rock-Thrush appears to be common in winter in southern Arabia, it is noted as being so by both Barnes and Yerbury. The southern Arabian examples appear to be referable to the typical form formerly known as *M. cyanus.*

Monticola rufocinerea.

Saxicola rufocinerea Rüppell, N. Wirbelth. 1835, p. 76, pl. 27: Samien, Abyssinia.

a, b. ♂. Menakha, 7000 ft. Dec., Jan.
c–e. 2 ♂, 1 ♀. Wasil, 4000 ft. Feb.
f. ♂. Sanaa, 7600 ft. Sept.

This species was known previously only from Africa, and is found from Abyssinia southwards to Lake Naivasha.

In addition to the examples recorded above there are two specimens in the British Museum from Iehaf and Zabed, in the Amiri district of southern Arabia, collected in July and October respectively, also by Bury. It appears therefore to be a resident.

Accentor fagani. (Pl. V. fig. 2.)

Accentor fagani O.-Grant, Bull. B. O. C. xxxi. 1913, p. 88: Yemen.

a, b. ♂ ♀. Menakha, 7000 ft. 1.ii.13 & 20.i.13. [Types of the species.]
c–e. ♂, 2 ♀. Menakha. 25–29.i.13.

"Occurs among the bushes and boulders along the main road coast-wise from the town."

This bird seems to be quite distinct. It differs from *A. fulvescens,* which seems to be its nearest ally, in the absence of a defined malar stripe, the whole chin and throat being finely spotted. The buffy tinge of the lower side is spread over the lower breast and flanks, and does not form a defined chest-band; the whole of the lower parts, too, are marked with distinct brown stripes.

Phœnicurus phœnicurus phœnicurus.

Motacilla phœnicurus Linnæus, Syst. Nat. 1758, p. 187 : Sweden.

a, b. ♀ ♂. Menakha, 7000 ft. 27. xii. 12, 30. i. 13.
c. ♂. Wasil, 1000 ft. 27. ii. 13.
d. ♀. Hajeilah, 2080 ft. 15. ii. 13.
e. ♂. Hodeida, sea-level. 7. x. 13.

The last specimen in the list is freshly moulted, and the black throat and rufous breast almost obscured by the white tips to the feathers, which wear off later. The Redstart does not appear to have been previously recorded from Arabia, though wintering in Africa.

Phœnicurus phœnicurus mesoleucus.

Sylvia mesoleuca Hemprich & Ehrenberg, Symb. Phys. 1832, ff. ee. : Djedda (=Jiddah).

a–c. ♂, 2 ♀. Menakha, 6000 to 8000 ft. 21. xii. 12 & 13–16. i. 13.
d. ♂. Hajeilah, 2080 ft. 15. iii. 13.
e. ♂. Hodeida, sea-level. 7. x. 13.

This Redstart seems to winter in southern Arabia together with the Common Redstart. It was first described from Jiddah, but does not seem to have been recorded since from Arabia. It breeding-range is southern Russia, Asia Minor, and Persia.

Luscinia luscinia.

Motacilla luscinia Linnæus, Syst. Nat. 1758, p. 184 : Sweden.

Luscinia philomela auct.

a. ♂. Hodeida, sea-level. 7. x. 13.

The single example of the Sprosser obtained at Hodeida is an interesting bird. It differs from all the other examples in the Museum collection in the shade of brown of the back, which is of a more slaty and less rufous tinge. It is also much whiter below ; the throat, the lower breast, abdomen, and under tail- and under wing-coverts being pure white without any wash of rufous which is so marked a feature of all the other examples of the Sprosser in the collection of the Museum.

As far as the dimensions are concerned and the proportionate length of the primaries, it resembles the Sprosser.

The Sprosser has not hitherto been recorded from southern Arabia, though there are examples from Fao in the Persian Gulf and from British East Africa in the British Museum.

I hesitate to describe this bird as a new form, as there is only one example, and the material for comparison in the Museum is very scanty. It is obviously a very freshly-moulted example, and to this its peculiarities are very likely due.

Luscinia golzii.

Lusciola golzii Cabanis, Journ. Orn. 1873, p. 79: Turkestan.

O.-Grant, 1900, p. 255.

a. ♀. Hajeilah, 2080 ft. 5. iv. 13.
b. ♂. Sanaa, 7600 ft. 3. ix. 13.

"Length in flesh, ♂ 191, ♀ 187 mm.; ♀. Bill and feet black; ♀. Loaded with fat. Stomach contained remains of insects."

The Persian Nightingale had already been obtained by Bury in the Amiri district in September. Its winter quarters had been previously unknown.

Cercotrichas melanoptera.

Sphenura erythroptera var. *melanoptera* Hemprich & Ehrenberg, Symb. Phys. 1832, ff. dd.: Arabia.

Yerbury, 86, p. 16, 96, p. 23: Barnes, 93, p. 75; O.-Grant, 1900, p. 256.

a–c. 1 ♂, 2 ♀. Hajeilah, 2080 ft. 15–27. iii. 13.

This species appears to be confined to southern Arabia, where it is probably a resident. There is a good series in the British Museum from Lahej. Yerbury found a nest in April at Shaik Othman. It is distinguished from the African species by the absence of the chestnut wing-lining, though curiously enough there are two examples, one in the present collection, indistinguishable from the African bird.

Cercotrichas podobe.

Turdus podobe S. Müller, Linn. Syst. Nat., Suppl. 1776, p. 145 : Senegal (ex *Buffon*).

a. ♀. Hajeilah, 2080 ft. 11. iii. 13.

This example, though taken at Hajeilah at the same time as those which are undoubtedly the true Arabian species, seems to be referable to the north-east African form, having a very distinct chestnut lining to the wing. There is another female example in the British Museum, taken by Messrs. Percival & Dodson at Al Khawr, Abian, S. Arabia, 2. x. 99, which is exactly similar.

Irania gutturalis.

Cossypha gutturalis Guérin, Rev. Zool. 1843, p. 162 : Abyssinia.

a. ♂. Sanaa, 7600 ft. Sept.

This bird had been previously collected by Bury in southern Arabia in the Amiri district, in July, September, and October, though it has not been recorded in literature.

There are several examples of a very pale-breasted form in the Museum collection, notably two obtained by Woosnam near Ardall (9500 ft.) in north-west Persia in April, one at Kaisarieh in Asia Minor in May by Danford, and another at Somadu, in Somali-land, by Pease in March ; but it seems impossible to regard this as more than a colour-variation.

Nearly all the examples from Asia Minor and Persia were collected in the early months of the year—March to May, and so are those from north-eastern Africa, while those from southern Arabia have been taken in July, September, and October. Whether this indicates any migration towards southern Arabia during the second half of the year must remain doubtful till more information is obtained.

Saxicola rubicola maura.

Motacilla maura Pallas, Reise Russ. Reichs ii. 1773, p. 708 : Urals and W. Siberia.

a–k. 7 ♂, 4 ♀. Menakha, 7000–8000 ft. 20. xii. 12 to 28. i. 13.

l–n. 1 ♂, 2 ♀. Hajeilah, 2080 ft. iii. 13.
o. ♂. Sanaa, 7600 ft. 16. ix. 13.

The Eastern Stone-chat, though said by Hartert and Reichenow to winter in southern Arabia, does not appear to have been met with by Yerbury or Barnes near Aden, and is not mentioned in Ogilvie-Grant's (1900) list.

Cercomela melanura.

Saxicola melanura Temminck, Pl. Col. iii. 43rd livr. 1824, no. 257, fig. 2: Arabia.

Yerbury, 86, p. 17, 96, p. 24, pl. 1. fig. 2; Barnes, 93, p. 77; O.-Grant, 1900, p. 256; Lorenz & Hellmayr, 1901, p. 241, 1907, p. 114.

a, b. ♂ ♀. Wasil, 4000 ft. ii. & iii. 13.

"Bill and feet black."

A common resident in southern Arabia, found throughout the year and breeding at Aden.

Œnanthe isabellina.

Saxicola isabellina Cretzschmar, Atlas zu Rüpp. R., Vögel, 1826, p. 52: Nubia.

Yerbury, 96, p. 24; O.-Grant, 1900, p. 255.

a. ♂. Hajeilah. 18. iii. 13.
b, c. ♂ ♀. Sanaa. ix. 13.
d. ♂. Hodeida. 7. x. 13.

This widely-spread Chat is apparently a winter visitor to southern Arabia between the months of September and March.

Œnanthe œnanthe.

Motacilla œnanthe Linnæus, Syst. Nat. 1758, p. 186: Sweden.

Barnes, 93, p. 76; Yerbury, 96, p. 24; O.-Grant, 1900, p. 255.

a, b. ♂ [♀?]. Sanaa, 7600 ft. ix. 13.

The Wheatear is common in southern Arabia in winter.

Œnanthe yemenensis.

Œnanthe yemenensis O.-Grant, Bull. B. O. C. xxxi. 1913, p. 87: Yemen.

a. ♂. Menakha, 7000 ft. 25.i.13. [Type of the species.]

b–f. ♂ ♀ & imm. Sanaa, 7600 ft. Sept.

"Though fairly common, is difficult to approach. It frequents open ground, usually perching on an irrigation bank or a clod of loam in a bit of bare fallow."

This fine Stone-chat, described by Mr. O.-Grant, is closely allied to *Œ. bottæ* of Abyssinia and to *Œ. isabellina.* From the former it differs in its slightly paler colour, both above and below, and also in possessing a very distinct white streak behind the eye hardly indicated in *Œ. bottæ.* From *Œ. isabellina* it can be distinguished by its distinctly stouter bill, the more ashy and less ochraceous tone of the back, and by the contrast between the dark crown and the lighter back, which, however, is not so evident in the freshly-moulted September male from Sanaa as in the type. The black on the outer tail-feathers is also more extensive in *Œnanthe bottæ,* measuring about 35 mm. against about 25 mm. in *Œ. isabellina.*

The most distinct character of the species, however, is certainly the white streak behind the eye.

A male of the year, killed September 3 at Sanaa, has traces of the juvenile spotting on the crown and back, which are quite alike in colour; the secondaries are broadly edged with tawny, and there is tracing of freckling on the under-side.

The following are the measurements in millimetres :—

	Length in flesh.	Wing.	Tail.	Culmen.	Tarsus.
♂ type	180	102	65	16	34
♂ imm. 3.ix.13. ..	185	103	69	16	32
♂ adt. 17 ix.13 ..	—	103	69	16	34
♀. 13.ix.13	—	98	61	17	30
♂ *S. bottæ*	—	103	65	16	31

Œnanthe leucomela.

Motacilla leucomela Pallas, N. Comm. Petrop. xiv. pt. 1, 1770, p. 584: Samara, Russia.

Saxicola pleschanka auct.

Barnes, 93, p. 76; O.-Grant, 1900, 256; Lorenz & Hellmayr, 1901, p. 241, 1907, p. 114.

a. ♀. Menakha, 7500 ft. 23. xii. 12.
b, c. ♂ ♀. Hajeilah, 2080 ft. iii. & iv. 13.
d, e. ♂ ♀. Sanaa, 7600 ft. ix. 13.

This species has been met with by Barnes and also by Bury on a previous occasion in the Abian country in September and October. It is probably only a bird of passage in southern Arabia.

Œnanthe lugentoides.

Saxicola lugentoides Seebohm, Cat. Bds. B. M. v. 1881, p. 371 : Sennaar.

O.-Grant. 1900. p. 256 ; Lorentz & Hellmayr, 1901, p. 214, 1907, p. 114.

a–e. 3 ♂, 2 ♀. Menakha, 7200 ft. xii. 12. & i. 13.
f. ♀. Wasil, 4000 ft. 25. ii. 13.
g. ♂. Hajeilah, 2080 ft. 14. iii. 13.

"Bill, iris, and feet black. Difficult to approach."

In addition to the above there is a considerable series of this rare Chat obtained by Bury in various localities in southern Arabia between the months of August and January. The only other example in the Natural History Museum is one of those collected by M. Botta in Sennaar in 1839, and mentioned by Seebohm in the original description.

It seems probable that the bird breeds in Arabia and is a resident.

Argya squamiceps yemensis.

Argya squamiceps yemensis Neumann, Orn. Monatsb. xii. 1904, p. 29 : between Shaik Othman and Lahej, Aden Protectorate.

Yerbury, 96, p. 16, 96. p. 23 ; Barnes, 93, p. 75 ; Matschie, J. Ornith. 1893, p. 112 ; Sharpe, Ibis, 1895, p. 384 ; Hawker, 98, p. 375 ; Grant, 1900, p. 256.

a, b. ♂ ♀. Hajeilah, 2080 ft. 28. iii. ; 9. iv. 13.
c. ♀. Sanaa, 7600 ft. 4. ix. 13.

The resident Babbler of southern Arabia is undoubtedly darker than that of Palestine, and is separable as a subspecies on those grounds, as pointed out by Neumann. The type-locality of *Argya s. squamiceps* Cretzsch. is Akaba, far to the north on the borders of Palestine. There is a large series of the southern *A. s. yemensis* in the British Museum from the neighbourhood of Aden as well as from Muscat. It appears to be a common species.

Pycnonotus xanthopygos.

Ixus xanthopygos Hemprich & Ehrenberg, Symb. Phys. 1828, ff. bb.: Syria.

Pycnonotus reichenowi Lorenz & Hellmayr, Orn. Monatsb. ix. 1901, p. 30: S. Arabia.

Barnes, 93, p. 75; Yerbury, 96, p. 23; Hawker, 98, p. 375; O.-Grant, 1900, p. 257; id. Ibis, 1901, p. 521; Lorenz & Hellmayr. 1901, p. 241, 1907, p. 114.

a–c. 2 ♂, 1 ♀. Menakha, 6000–7000 ft. 9–15. i. 13.
d. ♀. Wasil, 4000 ft. 26. ii. 13.
e, f. 1 ♀, 1 ♂ imm. Sok-al-Khamis, 7000 ft. 12. vii. 13.

I have very carefully compared these and other examples from southern Arabia in the British Museum with examples from Palestine, and I am quite unable to detect any difference between the two series. Lorenz & Hellmayr state that the southern Arabian birds are much smaller than those from Palestine, but I find that the wings of the males average 97 mm. and the females 91 mm. in both northern and southern birds, nor can I confirm any of the other distinctions pointed out by Lorenz & Hellmayr for their *P. reichenowi*.

Alseonax gambagæ.

Alseonax gambagæ Alexander, Bull. B. O. C. xii. 1901, p. 11: Gambaga, Gold Coast Hinterland.

Muscicapa somaliensis Bannerman, Bull. B. O. C. xxv. 1909, p. 20: Waghar, Somaliland.

a, b. ♂, ♂ imm. Sanaa, 7600 ft. 3. ix. 13.

"Iris brown, upper mandible black, lower pale brown, legs black."

I am satisfied that the two Flycatchers obtained by Bury at Sanaa are identical with those previously collected by him in Somaliland and described by Bannerman, and also with Alexander's Gold Coast bird; the types of both these species are in the British Museum, and agree very well with the Yemen bird. Alexander collected two additional examples of this species at Dumtar in the Shari country during his expedition from the Niger to the Nile in 1904–7. One of these is a young bird and exactly matches the one collected by Bury at Sanaa. They are conspicuously spotted with white above, while the underparts are streaked with brown, especially on the breast, and the wing- and tail-feathers edged with paler brown.

The following are the dimensions in millimetres:—

	Wing.	Tail.
Yemen, ♂	75	64
Waghar, ♂	73	64
,, ♀	73	62
Gambaga, ♂	73	60
Dumtar, ♂	70	56

Muscicapa grisola.

Muscicapa grisola Linnæus, Syst. Nat. 12th ed. 1766, p. 328: France.

Barnes, 93, p. 74; O.-Grant, 1900, p. 257.

a. ♂. Hodeida [sea-level]. 8. x. 13.

Parisoma buryi.

Parisoma buryi O.-Grant, Bull. B. O. C. xxxi. 1913, p. 87: Yemen.

a. Sex? Menakha, 7000 ft. 6. i. 13. [Type of the species.]

This species, represented only by a single example, seems most closely allied to *P. jacksoni* of Mt. Elgon, but it is distinctly larger, the wing of the former measuring 70 mm. against 65 in the latter. The Elgon bird is also much paler below and has less rufous on the flanks and belly. Altogether the Yemen bird is a very distinct form.

Tchitrea viridis.

Muscicapa viridis P. L. S. Müller, Linn. Syst. Nat., Suppl. 1776, p. 171: Senegal.

Terpsiphone cristata auct.

Yerbury, 85, p. 16. 96, p. 22; Barnes, 93, p. 72; O.-Grant, 1900, p. 257.

a–f. 3♂, 3♀. Wasil, 4000 ft. 15. ii. 13 to 4. iii. 15.

"For startling plumage nothing can surpass the Paradise Flycatcher, denizen of mid-altitude, where he ranges among the coffee in deep ravines. He begins life (after he is fledged) as a brisk young spark, all bright rufous chestnut, with a head of shot-silk tipped with a jaunty crest 'just like mother.' Next year he will throw out unexpected splashes of white along his wings, as the breeding-season approaches, and the two central shafts of his tail grow longer and larger. These two long tail-shafts are much prized by natives, who consider it a gift for a prince. Therefore the adult white plumage is always accompanied by extreme shyness and timidity. He haunts secluded and densely wooded ravines, guarded by giant precipices, ready always to flicker through the gloomy bush like a streak of white satin at the first alarm, or dive for settling down a thousand feet or so to the next belt of jungle."

Two of the males have long tails; in the third the middle tail-feathers are beginning to grow; all are in the red-backed and red-tailed stage, and show no signs of the white stage supposed to be the completed male plumage. The bird has a wide distribution throughout north-east and western Africa.

Cryptolopha umbrovirens yemenensis.

Cryptolopha umbrovirens yemenensis O.-Grant, Bull. B. O. C. xxxi. 1913, p. 90: Yemen.

a, b. ♂ ♀. Menakha, 8000 ft. 20. xii. 12 & 28. i. 13. [Types.]

c–e. 2♂, ♀. Wasil, 4000 ft. 15–25. ii. 13.

"Found among the leafless walnut-groves below Menakha."

This species was compared by Mr. O.-Grant with *C. umbrovirens* from northern Abyssinia, but the only examples of this form in the British Museum are now identified with *C. u. erythreæ*, and there are no examples of the typical *C. umbrovirens* from central Abyssinia in the collection. However, the present subspecies from the Yemen seems to be quite distinct, and can be at once recognized by its much paler underparts—almost white on the chin and belly, and by its white lores. The upper parts, too, are paler and of a more olivaceous shade of brown as compared with those of *C. u. erythreæ*.

The three additional examples from Wasil agree with the types in every way.

Riparia riparia.

Hirundo riparia Linnæus, Syst. Nat. 1758, p. 192: Sweden.

O.-Grant, 1900, p. 287.

a. ♀. Sanaa, 7600 ft. 11. ix. 13.

The Egyptian Sand-Martin is considered by Hartert to form a distinct subspecies (*R. r. littoralis*), but the Yemen bird seems to be on the whole referable to the typical form.

Riparia obsoleta.

Cotyle obsoleta Cabanis, Mus. Hein. i. 1850, p. 50: North-east Africa.

Yerbury, 86, p. 14, 96, p. 22; Barnes, 93, p. 69; O.-Grant, 1900 p. 257; Lorenz & Hellmayr, 1901, p. 242, 1907, p. 115.

a. ♀. Menakha, 7500 ft. 27. xii. 12.

A Crag-Martin from southern Arabia is distinguished by Reichenow (Vög. Afr. iii. 1905, p. 828) as *R. arabica*, and is compared with *R. fuligula* of north-eastern Africa. Whether this is a distinct form or not I am unable to say, but the bird from Menakha as well as others from Aden and Socotra in the British Museum closely resemble the true *R. obsoleta* of Egypt and Palestine (if this is the true typical form; the exact type-locality seems uncertain). There is a certain amount of variation in the general coloration of the upper parts, and birds from the Yemen and Aden districts are certainly darker than those from Egypt, but there is a good deal of variation in this respect, and probably the paler birds come from the more desert localities.

Riparia rupestris.

Hirundo rupestris Scopoli, Annus I. Hist.-Nat. 1769, p. 167 : Tyrol.

a. ♀. Menakha, 7500 ft. 27. xii. 12.

The Crag-Martin has not hitherto been noticed in southern Arabia. It ranges through southern Europe and northern Africa, and as far east as northern China.

Hirundo rustica.

Hirundo rustica Linnæus, Syst. Nat. 1758, p. 191 : Sweden.

Yerbury, 86, p. 14, 96, p. 22; Barnes, 93, p. 68; O.-Grant, 1900, p. 257.

a. ♂. Hajeilah, 2080 ft. 24. iii. 13.
b, c. ♀. Sanaa, 7600 ft. 16–17. ix. 13.

Hirundo rufula.

Hirundo rufula Temminck, Man. d'Orn. 2nd ed. 1835, iii. p. 298 : Egypt.

a. ♀. Menakha. 1. ii. 13.
b. ♂. Wasil, 4000 ft. 5. iii. 13.
c. ♂. Sok-al-Khamis, 7000 ft. 26. vii. 13.

The Red-rumped Swallow has not previously been recorded from southern Arabia, but as it ranges from Morocco to Afghanistan and south to Abyssinia, it is hardly surprising to find it in the Yemen mountains, where it presumably breeds.

Cuculus canorus.

Cuculus canorus Linnæus, Syst. Nat. 1758, p. 110 : Sweden.

Barnes, 93, p. 72; O.-Grant, 1900, p. 258.

a, b. ♂ ♀. Sanaa, 7600 ft. 6. ix. 13.

"Male: bill black, iris orange-yellow, orbital patch pale yellow, feet and eyelid yellow."

Both birds are quite adult, but in worn plumage.

Centropus superciliosus.

Centropus superciliosus Hemprich & Ehrenberg, Symb. Phys. 1828, ff. r.: Arabia.

Yerbury, 86, p. 15, 96, p. 20; Barnes, 93, p. 73; O.-Grant, 1900, p. 253; Lorenz & Hellmayr, 1901, p. 242, 1907, p. 115.

a, b. ♂ ♀. Hajeilah, 2080 ft. 12 & 16. iv. 13.

"Female: iris crimson, bill black, feet greyish black."

"A markedly unfamiliar note is that of the Bush-Cuckoo, a tawny long-tailed bird that flits like a miniature pheasant through the bushes. Its song is like the murmur of a brook, and is only heard in the cool of the morning and when the afternoon sun has spent itself."

Micropus affinis.

Micropus affinis, Gray & Hardwicke, Ill. Ind. Zool. i. 1832, pl. 35. fig. 2: India.

Yerbury, 86, p. 15, 96, p. 18; O.-Grant, 1900, p. 258.

a. ♂. Hajeilah, 2080 ft. 24. iii. 13.

b. ♀. Sanaa, 7600 ft. 10. ix. 13.

"Iris dull brown, bill black, feet vandyke-brown, tarsi paler; after heavy rain."

Merops apiaster.

Merops apiaster Linnaeus, Syst. Nat. 1758, p. 117: S. Europe.

a–c. 2 ♂, ♀ imm. Sanaa, 7600 ft. 4–15. ix. 13.

The Bee-eater had not previously been recorded from southern Arabia, except by Forskål in the 18th century, but there are examples in the British Museum, obtained by Bury some years ago in the Amiri district, on September 9. A note on the ticket of one of these examples is as follows:—"Taken from a flight moving over from the north, which stooped to settle for the night among the trees of El Kubar."

Merops cyanophrys.

Phlothrus cyanophrys Cabanis & Heine, Mus. Hein. ii. 1860, p. 137: Kunfuda, Arabia.

Yerbury, 86, p. 15, 96, p. 19; Barnes, 93, p. 70; Hawker, 98, p. 374; O.-Grant, 1900, p. 259; Lorenz & Hellmayr, 1901, p. 242, 1907, p. 115.

a. ♀. Menakha, 6000 ft. 21. xii. 2.

b. ♀. Sok-al-Khamis, 7000 ft. 11. vii. 13.

A resident and common species in southern Arabia; *M. muscatensis* Sharpe (Ibis, 1886, p. 165) is hardly to be distinguished except by its rather shorter bill.

Aerops albicollis.

Merops albicollis Vieillot, N. Dict. xiv. 1817, p. 15: Senegal (ex *Levaillant*).

Barnes, 93, p. 71; Yerbury, 96, p. 19; O.-Grant, 1900, p. 259; Lorenz & Hellmayr, 1901, p. 243, 1907, p. 116.

a, b. ♂ ♀. Hajeilah, 2080 ft. 9–14. iv. 13.

"An influx of these birds has occurred since the heavy rain of April 9th."

The Percival-Dodson Expedition obtained several examples north of Lahej in August, and Mr. Bury others in the Amiri district in December and February. It is probably a resident. It has a wide distribution throughout north-east and western Africa.

Upupa epops.

Upupa epops Linnæus, Syst. Nat. 1758, p. 117: Sweden.

Yerbury, 86, p. 16, 96, p. 20; Barnes, 93, p. 73; O.-Grant, 1900, p. 259; Lorenz & Hellmayr, 1907, p. 115.

a. ♂. Hajeilah, 2080 ft. 12. iii. 13.

Undoubtedly it is the typical race of the Hoopoe which either winters in southern Arabia or passes through on migration. It has also been taken in August, September, and October.

Lophoceros nasutus forskalii.

Buceros (Lophoceros) forskalii Hemprich & Ehrenberg, Symb. Phys. 1828, ff. z, note 8: Kunfuda, Arabia.

O.-Grant, 1900, p. 260; Lorenz & Hellmayr, 1901, p. 243, 1907, p. 116.

a, b. ♂ ♀. Hajeilah, 2080 ft. 25–26. iii. 13.

"At sunrise on Bajil plain you may hear the Hornbills calling vociferously to each other, and approach the queer misshapen bird while absorbed in his weird spasmodic chant."

As has been noticed by Claude Grant (Ibis, 1915, p. 270) there is considerable variation in the dimensions of the North African Grey Hornbill, which ranges from Gambia to southern Arabia. There can be no doubt, however, that the Arabian birds are the largest. I find that the wing averages 250 mm., while those from western Africa average 221; the Soudan birds are intermediate, averaging 231. It seems worth while therefore to keep the Arabian birds distinct.

Forskål described this Hornbill under the name of the "Crotophaga from Arabia," and Hemprich and Ehrenberg met with it subsequently and named it.

Halcyon leucocephala semicærulea.

Alcedo semicærulea Gmelin, Syst. Nat. i. 1788, p. 457: Yemen.

Barnes, 93, p. 72; Yerbury, 96, p. 20; O.-Grant, 1900, p. 260; Lorenz & Hellmayr, 1901, p. 243, 1907, p. 116.

a, b. ♂ ♀. Hajeilah, 2080 ft. 12–15. iv. 13.

c. ♂ imm. Sanaa, 7600 ft. 3. ix. 13.

"These birds only appear at Hajeilah after the rains set in."

"In every seclusion, amid tall trees in deep ravines, you may meet that quaint anomaly, the land Kingfisher. The bird's retiring habits belie its startling appearance. Its back and wings are bright metallic blue, barred with black, while a glowing rufous breast, an ashen head, and a big vermilion bill combine to give the bird away to the most casual observer. It feeds on insects and is seldom found near water."

Claude Grant (Ibis, 1915, p. 265) distinguishes the Arabian race from others found in Africa. The type was obtained by the Danish traveller Forskål in the Yemen in the 18th century, and described in his posthumous 'Descriptiones,' though, as he can hardly be called a binomial author, it is better to date the name from Gmelin.

Coracias abyssinus.

Coracias abyssinus Boddaert, Tabl. Pl. Enl. 1783, pl. 38: Abyssinia.

Yerbury, 86, p. 15, 96, p. 20; Barnes, 93, p. 72; O.-Grant 1900, p. 260.

a, b. ♂ ♀. Hajeilah, 2080 ft. 15. iii. & 4. iv. 13.

"Among the denser bush of Hajeilah gayer birds prevail, especially the long-tailed Roller, a symphony in cobalt and azure, shaded delicately with fawn. The male sports a long, finely pointed tail, and spends a great deal of his time with raffish bachelor birds on the field telegraph-wire to Sanaa, while the female stays at home in some pollarded jujube-tree and bites her tapering tail with vexation; that is why all female Rollers of this type have such ragged tails. But the gad-about male is not a bad husband. He will work for hours when locusts are arriving to supply the home-larder, and may often be heard singing a kind of love-song as he cuts somersaults and volplanes to cheer his nesting mate."

These are the first Arabian representatives of the Abyssinian Roller which have reached the British Museum. I have therefore carefully compared them with the series from northern Africa, and have come to the conclusion that no sufficient distinction can be detected to justify the separation of the Arabian bird from that of Abyssinia. The West African Roller, however, has a strong wash of greenish on the crown, and can be well considered a distinct race under the name of *C. abyssinus senegalensis*, as proposed by Reichenow.

Reichenow states that in an example of this species from Arabia examined by him the feathers of the middle of the back were pale blue like the crown and nape. He seems uncertain whether this bird is an accidental variation or represents a distinct race. The birds collected by Bury in the Yemen certainly show no sign of this aberration and must be identified with the Abyssinian form.

Melierax metabates.

Melierax metabates Heuglin, Ibis, 1861, p. 72: Bahr-el-Abiad [= White Nile].

Melierax polyzonus (nec Lesson), auct.

Barnes, 93, p. 67; Yerbury, 96, p. 15; Hawker, 98, p. 374; O.-Grant, 1900, p. 263.

a, b. ♀ ♂. Hajeilah, 2080 ft. 27. iii. & 10. iv. 13.

Astur sphenurus.

Falco (*Nisus*) *sphenurus* Rüppell, N. Wirb. Vög. 1835, p. 42: Dahlak I., nr. Massowah.

a. ♀. Menakha, 6000 ft. 21. xii. 12.

b. ♂. Hajeilah, 2080 ft. 16. iv. 13.

Rüppell's Goshawk is not mentioned in Mr. O.-Grant's list of Arabian birds, though stated by Reichenow as having been obtained by Hemprich & Ehrenberg in Arabia. It has a wide distribution in the northern part of the Ethiopian region from Senegal to Somaliland.

Gypaëtus barbatus grandis.

Gypaëtus grandis Storr, Alpenreise vom Jahre 1781, 1794, p. 69: Switzerland.

a. ♂ imm.	Sok-al-Khamis,	7400 ft.		14. vii. 13.
b. ♂ imm.	,,	,,	,,	19. vii. 13.
c. ♂ nearly adt.	,,	,,	,,	26. vii. 13.
d. ♀ adt.	,,	,,	,,	2. viii. 13.
e. ♀ adt.	,,	,,	,,	15. viii. 13.

b. "Length in flesh 1045 mm., expanse of wings 2186; bill pale brown, cere bluish, iris very pale with blood-red streaks, feet bluish lead, toes darker."

c. "Length in flesh 1040 mm., expanse of wings 2355; two mammal bones the size of a man's thumb in crop."

Wings measure: "*a*" 720, "*b*" 730, "*c*" 700, "*d*" 760, "*e*" 730 mm., respectively.

"The lordly Lämmergeyer likes bones, but has neither the flesh-tearing beak of the Griffon Vulture nor its punishing wing-power. Yet he is a first-class exponent of aviation, and has probably been sailing about for hours watching the Vultures at their prey with fierce red-ringed eyes.

"There is a rush like the wind in tall trees, a gaunt pariah yelps and leaps hastily aside, and the Lämmergeyer is gliding on easy pinions a hundred yards off with a bone in his beak. The bird goes banking steeply up an ascending spiral, to a height of a thousand feet or more, then drops the bone and swoops down after it, a very good second, to earth. If the bone is shattered the bird picks out the marrow, if not, he repeats the performance again and again. If the bone is too light to be thus broken, after several attempts he swallows it whole."

This fine series of Lammergeyers is the first which has been received from southern Arabia. A careful examination of them shows that they must be referred to the European and Asiatic form, rather than to that of Abyssinia, as the cheeks have the characteristic black spotting and the black streak behind the ear is well-marked. On the other hand, the feathering on the tarsus appears to me to stop a little short of the toe-joint, while in the European and Indian bird it usually extends quite to that point, and in the Abyssinian birds there is a larger space of bare tarsus, so that in this respect the Yemen birds appear to be somewhat intermediate.

In size the Yemen bird seems to be smaller than that of Europe and India.

Hartert, in his recently published fasciculus of the 'Vög. pal. Fauna' (p. 1196), restricts the typical *G. b. barbatus* to the bird from the Atlas mountains, and uses the name given above for the European and Indian forms, which he is unable to separate from one another, and I have followed him in this usage.

Hieraaëtus fasciatus.

Aquila fasciata Vieillot, Mém. Soc. Linn. Paris, ii. pt. 2, 1822, p. 152 : Montpellier, France.

a. ♀. Wasil. 18. ii. 13.

"Length 645 mm. Iris bright yellow, bill dark slate, pale at base, feet yellow."

Bonelli's Eagle is found in southern Europe and northern Africa from Spain and Morocco eastwards to China, but has not hitherto been recorded from southern Arabia. The wing of the single specimen (stated to be a female) measures only 455 mm., which is small even for a male. Perhaps the bird is wrongly sexed. The moult is almost completed, only two of the tail-feathers and two of the inner primaries on each wing remaining to be shed.

Milvus ægyptius.

Falco ægyptius Gmelin, Syst. Nat. i. 1788, p. 261: Egypt.

Yerbury, 86, p. 14, 96, p. 15; Barnes, 93, p. 67; O.-Grant, 1900, p. 262; Lorenz & Hellmayr, 1901, p. 243, 1907, p. 117.

a. ♂.	Menakha, 7000 ft.	26. xii. 12.
b, c. ♂ ♀ imm.	Sok-al-Khamis, 7400 ft.	29. vii. 13.
d, e. ♂ ♀.	Sanaa, 7600 ft.	12. ix. 13.

Only the male from Menakha seems to be fully adult, with a bill bright yellow; specimen "*d*" has the bill pale brown, though the plumage appears to be the adult one; the other three birds are all in immature dress with black bills.

The Arabian birds seem rather smaller than those from Egypt. The wing of the adult Menakha male only measures 410 mm., while Hartert gives the average dimensions of the Egyptian bird as 430–458, but in other respects the Arabian birds resemble those from Egypt rather than the darker *M. parasitus* of the Ethiopian region proper.

Tinnunculus tinnunculus carbo.

Cerchneis tinnunculus carbo Hartert & Neumann, J. f. Orn. 1907, p. 592: nr. Harrar, Abyssinia.

Yerbury, 86, p. 13, 96, p. 16; Barnes, 93, p. 65; O.-Grant, 1900, p. 262.

a. ♂ imm.	Menakha, 7000 ft.	27. xii. 12.
b. ♂.	Sanaa, 7600 ft.	8. ix. 13.

The Kestrel of southern Arabia appears to be referable to the African subspecies, distinguished by its rather darker colouring and the more developed spots on the lower surface. The wing of the adult male measures 230 mm.

Scopus umbretta bannermani.

Scopus umbretta bannermani O.-Grant, Bull. B. O. C. xxxv. 1914, p. 27: Mt. Legenisho, Bt. E. Africa.

Yerbury, 86, p. 22, 96, p. 38; Barnes, 93, p. 174; O.-Grant, 1900, p. 265.

a. ♂. Hajeilah, 2080 ft. 27. iii. 13.

The Hammerkop of Arabia must be referred to the larger form spread all over east and south Africa. The wing of the present example measures 305 mm.

Bubulcus ibis.

Ardea ibis Linnæus, Syst. Nat. 1758, p. 144: Egypt.

Bubulcus lucidus auct.

Yerbury, 96, p. 27; O.-Grant, 1900, p. 266.

a. ♂. Hajeilah, 2080 ft. 15. iii. 13.

Totanus ochropus.

Tringa ocrophus Linnæus, Syst. Nat. 1758, p. 149: Sweden.

Yerbury, 86, p. 21, 96, p. 35; Barnes, 93, p. 172; O.-Grant, 1900, p. 269.

a. ♀. Sanaa, 7600 ft. 4. ix. 13.

Totanus hypoleucus.

Tringa hypoleucos Linnæus, Syst. Nat. 1758, p. 149: Sweden.

Yerbury, 86, p. 21, 96, p. 35; Barnes, 93, p. 171; O.-Grant, 1900, p. 269; Lorenz & Hellmayr, 1907, p. 119.

a. ♀. Sanaa, 7600 ft. 5. ix. 13.

Totanus glareola.

Tringa glareola Linnæus, Syst. Nat. 1758, p. 149: Sweden.

O.-Grant, 1900, p. 268.

a. ♂. Sanaa, 7600 ft. 10. ix. 13.

The Common, Green, and Wood-Sandpipers all appear to pass through Yemen as well as the Aden Protectorate on migration.

Gallinago media.

Scolopax media Latham, Gen. Synops. Suppl. i. 1787, p. 292: England.

a. ♂. Sanaa. 7600 ft. 5. ix. 13.

The Great Snipe does not appear to have been previously recorded from Arabia. It probably only passes through on migration. It is possible that the Snipe shot by Barnes and Yerbury should have been referred to this species. They are recorded as the Common Snipe.

Phalaropus lobatus.

Tringa lobata Linnæus, Syst. Nat. 1758, p. 148: Hudson Bay.

a. ♀. Sanaa, 7600 ft. 6. ix. 13.

"Bill black, feet ashy black."

It is very remarkable to find the Red-necked Phalarope occurring at Sanaa at an elevation of over 7000 ft. According to Blanford its principal winter abode in the eastern hemisphere is on the coasts of Arabia, Baluchistan, and Sind, but I have not found a previous record of its occurrence in south-western Arabia. Possibly its migration route runs along the mountain-range. The single example is without any trace of the red patches on the throat, and is in winter plumage.

Glareola pratincola limbata.

Glareola limbata Rüppell, Syst. Uebers. 1845, p. 113, pl. 43: Djetta (=Jiddah), Arabia.

a–c. ♂ juv., 2 ♀ juv. Sanaa, 7600 ft. 13. ix. 13.

All three of these examples are quite young birds, with the brown backs mottled with white and white below with a dusky band across the chest.

There can be no doubt that there are several distinct subspecies of *G. pratincola*, but it is impossible with only young birds to state with certainty to which race these should be referred. There is a young bird in the British Museum which matches the Sanaa birds very well. It is labelled Djetta, and is said to be a co-type of Rüppell's *G. limbata*.

I have therefore referred the Sanaa birds to this form. The Pratincole is not mentioned in Ogilvie-Grant's list.

Vinago waalia.

Columba waalia Gmelin, Bruce's Reisen Afr. 1791, p. 31: nr. Lake Tsana, Abyssinia.

Yerbury, 86, p. 18, 96, p. 29; O.-Grant, 1900, p. 271; Lorenz & Hellmayr, 1901, p. 244, 1907, p. 119.

a, b. ♂ ♀. Hajeilah, 2080 ft. 26. iii. 13.

"Male, length in flesh 334 mm.; iris pink, bill whitish, cere dull pink, feet ochre-yellow, claws pale grey; crop full of the fruit of the jujubier."

"Before leaving the mid-altitudes we must not forget the Green Pigeon, which ranges no higher, and is common in the foot-hills when the wild figs are ripe. His tints harmonize so perfectly with his surroundings, that you may mark a flight down into a tree and fail to detect their actual presence, till they leave like a tornado on the side your gun does not command."

There seem to be no appreciable distinction between these birds and those from Abyssinia, whence came the type of the species.

Columba livia intermedia.

Columba intermedia Strickland, Ann. Mag. N. H. xiii. 1844, p. 39: India.

Barnes, 93, p. 165; Yerbury, 96, p. 29; O.-Grant, 1900, p. 271; Lorenz & Hellmayr, 1901, p. 244, 1907, p. 120.

a, b. ♂ ♀. Menakha, 7500 ft. 1 & 27. i. 13.

c. ♂. Hajeilah, 2080 ft. 27. iii. 13.

"The Rock-Pigeon harries the crops, and may be seen in early morning along the mountain-road looking for spilled grain. It is a confirmed freebooter, and has its home on inaccessible ledges or in hidden caves.

"On the Sanaa plain, pigeons come from a great distance to raid the crops, and may be seen flying straight and high at sunrise on their marauding quest. Some get so gorged that they shirk the return flight, and shelter from the heat of the day in deep wells."

The Arabian Rock-Dove is very close to the Indian form, with the grey rump the same colour as the back. It is also very similar to the Egyptian bird, which has been called *Columba schimperi*. But, as has been recently shown by Mr. Stuart Baker, the Rock-Dove is so often kept in a state of domestication or semi-domestication and the true wild birds so often cross with the domesticated ones, that it is most difficult to arrange the forms into distinct geographical races, and Mr. Baker himself is in favour of treating all the grey-rumped Rock-Doves from Tunis to China as one race. If this is the correct view the Yemen Rock-Doves must certainly be called *C. livia intermedia*.

Streptopelia senegalensis.

Columba senegalensis Linnæus, Syst. Nat. 12th ed. i. 1766, p. 285: Senegal.

Yerbury, 86, p. 19, 96, p. 30; Barnes, 93, p. 165; O.-Grant, 1900, p. 271; Lorenz & Hellmayr, 1901, p. 244, 1907, p. 120.

a, b. ♂ ♀. Menakha, 7000 ft. 26. xii. 12.

"Male: Iris yellow; bill black; legs carmine."

Streptopelia semitorquata.

Columba semitorquata Rüppell, N. Wirbelth. 1835, p. 66: Taranta mts., Abyssinia.

Barnes, 93, p. 165; Yerbury, 96, p. 30 (*Turtur risorius*); O.-Grant, 1900, p. 272.

a. ♂. Wazil. 15. ii. 13.

Pterocles lichtensteini arabicus.

Pterocles lichtensteini arabicus Neumann, Orn. Monatsb. 1909, p. 152: Lahadj, S. Arabia.

Yerbury, 86, p. 19, 96, p. 31; Barnes, 93, p. 166; O.-Grant, 1900, p. 272; Lorenz & Hellmayr, 1907, p. 120.

a. ♀. Hajeilah, 2080 ft. 5. iv. 13.

"Bill black, orbital patch sulphur, feet yellow."

The Arabian examples of Lichtenstein's Sand-Grouse are undoubtedly paler than those from Nubia and north-east Africa, and seem worthy of subspecific distinction, as has been pointed out by Neumann and Claude Grant.

Caccabis melanocephalus.

Perdix melanocephala Rüppell, N. Wirbelth. 1835, p. 11, pl. 5: Djetta (=Jiddah), Arabia.

Nicholson, P. Z. S. 1851, p. 128, pl. Aves, xl.; Yerbury, 86, p. 19, 96, p. 31; Barnes, 93, p. 166; O.-Grant, 1900, p. 272; Lorenz & Hellmayr, 1901, p. 245, 1907, p. 121.

a, b. ♂ chicks. Sok-al-Khamis, 7000 ft. 4. viii. 13.

"Iris brown, bill black, feet reddish brown; hatched under a hen."

"The game-bird of the upper heights is the big Black-headed Chikore, and a very difficult bird he is to bag. To begin with, he is disgracefully persecuted by anyone who has a weapon of precision, and what Yemen Arab has not? He prefers therefore to pick a scanty living among lonely kopjes where cultivation is not, or roam about the black breasts of mountain-giants, where food is even scarcer. In this latter case the covey (usually three brace or so) will leave its home among the boulders of some sheltered ravine, and file up stealthily at dark to feed on lofty terraced fields of barley."

The Arabian Red-legged Partridge is figured very well by Rüppell, and also by Dr. Nicholson of the East India Company's service, who obtained it some twenty miles inland from Mokha, and named it *Francolinus yemensis*. The figure drawn by Wolf is quite inaccurate, and was probably prepared from a description or from a rough sketch by Dr. Nicholson. The species is confined to south-west Arabia.

The chicks sent home by Mr. Bury are yellowish brown above, speckled with a few white and black markings on the lower back; below, the chin and throat are white, the breast pale brown, some of the feathers with white central streaks, the rest of the lower parts pale slaty.

Numida ptilorhyncha ptilorhyncha.

Numida ptilorhyncha Lesson, Traité, 1831, p. 498: Mareb river, Abyssinia (*C. Grant*).

a. ♂. Hajeilah, 2080 ft. 10. iv. 13.

"Bill: upper mandible dark brown, lower and tip of upper paler, wattles blue, casque and tuft very pale brown; throat black; feet black."

"It is among the foot-hills and the adjacent plains that Guinea-fowl occur—they never range up to mid-altitude (4000 ft.).

"These birds may be seen any morning in summer feeding in large flocks out on the open fallow, well out of shot from any cover. They scatter about like farmyard hens, picking up stray corn and tasty insects, but if one turns to approach them in a gradual or unostentatious manner, they edge persistently away, and to 'gallop' them on an active pony is but to test their marvellous powers of sprinting."

No Guinea-fowl has previously been brought home from southern Arabia. The present example appears, so far as it is possible to form a conclusion from a single isolated specimen, to be referable to the typical Abyssinian race, *N. p. ptilorhyncha*, characterised by Mr. Claude Grant (Ibis, 1915, p. 26), who has made a careful study of all the races of the Tufted Guinea-fowl. The range of this race extends from Suakim to northern Abyssinia, and now, if I am correct in my conclusions, across the Red Sea to the highlands of Yemen. It is characterised by its well-feathered neck and large wattles.

XI.—*Some Reflections on the Breeding-habits of the Cuckoo* (Cuculus canorus). By Major R. F. MEIKLEJOHN *, D.S.O., Royal Warwickshire Regiment, M.B.O.U.

IN the ignorance which still prevails regarding many details of the breeding-habits of the Cuckoo, we have a good object lesson of how well Nature is able to guard her secrets, since, after years of careful and methodical investigation by distinguished naturalists, comparatively few authentic facts have been established.

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* Major Meiklejohn was wounded and taken prisoner during the retreat from Mons, and was in Germany till quite recently. He sends us this paper from Switzerland, whither he has now been transferred.

Theories, indeed, have multiplied exceedingly, as is inevitable when facts are few. Many of these theories verge on the fantastic, while others have been evolved by an apparent confusion of cause and effect, and facts have been twisted to fit them.

As a result, it is not difficult to understand that the Cuckoo is regarded by many people as being absolutely distinct from all other species in its habits, and as possessing many extraordinary endowments to assist it in its parasitical methods of reproduction.

The difficulties in obtaining any conclusive information on many doubtful points are, indeed, so great that it is not easy to see how they can be overcome. In addition to the initial impossibility of identifying one female from another, the male in this species unfortunately resembles his mate so closely that it can only be distinguished at a distance by the note, while its polygamous habits, and the fact that, unlike other birds, it is not more or less tied down to the vicinity of its nest, makes observation of any specific female, and a computation of the numbers resident in any district, an almost hopeless task.

Consequently, it seems that if we are ever to solve the problem it must be by a combination of lucky chances, and by carefully piecing together, as in a detective mystery, the various clues which come into our possession; and it is thus of great importance that no available information shall be overlooked or remain unnkown. Hence, in this paper, I propose to review the facts we possess, and to examine some of the more important theories, in the hope of interesting others in this subject, and indicating the points on which further information is required.

The authentic facts known.

The actual facts we possess, as distinct from conclusions and theories, may be summed up as follows :—

(*a*) Our Cuckoo (*C. canorus*), in common with most of its family, places its eggs in the nests of other birds, leaving to them the duties of incubation and rearing the young.

(*b*) Either before, or when, inserting its eggs into the nest, the Cuckoo almost invariably removes one or more of those belonging to the selected foster-parents. Other eggs are occasionally ejected subsequently.

(*c*) The Cuckoo's egg, in the large majority of cases, is accepted by the birds on whom it is foisted, and the young Cuckoo is tended with extraordinary devotion, even after its size greatly exceeds their own. They continue to feed it for some time after it has left the nest, and, owing to its size, often have to do so by perching on its head, and thus placing the food in its huge beak. This is the more remarkable as, when fully fledged, the Cuckoo is "mobbed" by small birds owing to its resemblance to a Hawk.

(*d*) Very shortly after being hatched the young Cuckoo almost always ejects all the other occupants of the nest, and, in the rare event of two young Cuckoos being hatched in the same nest, the weaker is turned out. This, indeed, is a necessary provision of Nature, for, owing to its rapid growth and great voracity, there might not be sufficient food for it, if it had to be divided amongst other mouths. To achieve the process of ejection, the young Cuckoo has a curious hollow in its back, and it worms itself under each of the other occupants of the nest in turn until it has got them on this hollow, when, by a sudden straightening of the legs, it shoots them over the side of the nest. Its pertinacity is extraordinary, and it knows no rest till all are expelled, when it sinks back exhausted with gaping beak. Yet, if one of the rightful occupants be replaced its efforts begin again at once. Isolated instances have occurred in which the other young were not thrown out, and there was a case quoted on the Continent in 1914 in which two well-feathered young Cuckoos were found in a nest with young Great Titmice. But when the nest is situated in a deep hole or cavity, the "ejection" of the other inmates might be impossible.

These appear to be all the indisputable facts we possess on this subject, and, so far, the difficulties caused by the abnormal nesting-habits of this species have baffled all attempts to obtain further conclusive evidence.

The Evolution of the Breeding-habits of the Cuckoo.

Before dealing with some of the theories and conclusions which have been arrived at regarding the habits of the Cuckoo, it is, I think, of interest to consider by what process of evolution they may have originated, and whether this does not supply us with some clues to the ultimate solution of the mystery.

The Cuckoo, in reality, is by no means so unique as is commonly thought, and it is possible to trace various connecting links which form a chain, even if incomplete, between the devotion displayed by most species for their eggs and young, and the almost entire lack of this in the Cuckoo.

In this respect the Cow-birds (*Molothrus*) of America are of great interest, for in this family nearly all are parasitic, to a greater or less degree, in their breeding-habits, except the Bay-winged Cow-bird (*M. badius*), which incubates its eggs, rears its young, and occasionally even builds a nest of its own (as, indeed, do some of the Cuckoos), though usually appropriating those of other species. In this family, indeed, we seem to have a much more complete chain than in the Cuckoos, and here also one species has preserved the parental instinct more or less intact, while others have lost it to an equal extent with *C. canorus*.

Now it seems not unreasonable to assume that the first stage in the loss of the parental instinct is to be found in those species which have mainly or entirely ceased to build nests of their own but make use of the deserted abodes of other species, and thus are "parasitical" in this respect. It is worth remarking, however, that in many species which have adopted this habit a certain number of individuals still construct their own nests, and the case of an American species, *Machetornis rixosa*, is specially noticeable from the fact that at times an elaborate structure is made by the bird itself, but more usually the domed nests of other species are used.

We have, then, in these species certain individuals who have lost the building instinct, while in others it has persisted, and there seems fairly conclusive evidence to show that the existence or lack of suitable deserted nests has no bearing on the matter.

Similarly, amongst such species as deposit their eggs on the ground or on rocks, with little pretence at nest-making, one finds individual cases where a more or less compact nest has been made, and the building instinct has persisted.

It may perhaps be argued from this that the loss of the "building instinct" is a very gradual process, or even that, on the contrary, in the species in question a gradual evolution towards nest-building is taking place, and it would be interesting to have reliable data as to whether the number of individuals using the deserted nests of other birds was on the increase or decrease.

The next link would appear to be the loss of the incubating instinct as evidenced in some exotic species, which leave their eggs to be hatched mainly or entirely by the heat of the sun.

Here, again, the question arises as to whether it is correct to speak of the loss of the incubating instinct, since, if birds be descended from reptiles, those leaving their eggs to be hatched by the sun, and indeed those building no nests, have remained most true to the original type; but in any case we have these stages between the parasitical breeding-habits of our Cuckoo and the care other species bestow on their eggs and young, and even if there is a wide gap between the lack of the building and incubating instincts, and entrusting the eggs and young entirely to other species, we can find the following intermediate stages to bridge this over.

First of all we have the fact that, in some species, such as the Pheasant, Partridge, and some of the Cow-birds, two or more females at times lay in the same nest. Further, we find, at times, that odd eggs are deposited by birds in the nests of others of the same or different species, presumably as a result of their own eggs having been taken before laying is completed. For instance, I have seen an egg of the Common Gull in an Oyster-catcher's nest with three eggs, and have found five Golden Plover's eggs in a nest, one of which was obviously laid by a different female, and many other such instances are on record.

Also, judging from the behaviour of domestic fowls, it seems clear that the sight of a nest with eggs in it exercises an attraction on a bird having none of its own, when it is about to lay an egg, and if no opposition is met with. Further, in the family of the Cow-birds, the members of which seem in a curiously transitional state, we find in some species that two females often lay in the same nest, whilst one, *M. rufoaxillaris,* only selects *M. badius—and no other species*—as foster-parent.

If, then, we assume that, having by degrees ceased, more or less entirely, to build a nest of its own, the Cuckoo was unable to find suitable places in which to deposit its eggs, we can easily imagine that, by degrees, and on the analogy of the domestic fowl and other birds, it adopted the habit of placing them in the nests of other species in which there were already eggs, and also (and this is a point of considerable importance in subsequent conclusions), it may be presumed that preference would be given to such nests as contained eggs more or less similar to its own. The females adopting this habit would be freed from the exhausting duties of incubation and rearing their young, and, as occurs in those kinds of poultry in which the incubating instinct has been suppressed, would probably lay more eggs in a season, and consequently more young would be reared. The young so reared would have the parental instinct still more suppressed, and thus the practice would become hereditary.

On the other hand, we can easily imagine that the families of Cuckoos which still reared their own young would decrease rapidly in numbers, given a careless mother and nestlings requiring so much food for their rapid growth that only the strongest of each brood survived, for it seems very possible that the instinct of ejecting or starving out the other inmates of the nest was an early, or even original, trait.

In any case it has been impossible to find any abnormality in the structure of the Cuckoo to prevent its incubating its eggs. Suggestions to the effect that the hairy caterpillars on which it feeds are so scarce in some seasons that it would not have time to procure food and rear its own young, seem far fetched.

Lastly, Darwin's statement, which Dr. Rey also mentions, that "the immediate and final cause of the Cuckoo's instinct is that she lays her eggs not daily, but at intervals of two or three days," does not carry conviction with it, but appears to be confusing cause and effect.

It seems, however, unlikely that the origin of the parasitic breeding-habits of the Cuckoo will ever be definitely settled, and, having considered the question at some length, we must pass on to study the other peculiarities of this species in detail.

Dr. Rey's Conclusions.

Having exhausted our facts, the remainder of our knowledge rests entirely on theories and conclusions, and these are many and diverse. Among the most important are the seventeen arrived at by Dr. Eugène Rey *, after many years of careful investigation in Germany, and as these cover most of the main points they deserve detailed consideration.

They are as follows :—

(1) The eggs of the Cuckoo (*C. canorus*) vary more in colouring and markings than those of any other known species.

(2) The main distinctive features of the eggs are the greater weight of the shell, and especially its thickness and solidity.

(3) The majority of Cuckoos' eggs resemble, in their colouring and markings, the normal type of egg of one of the common soft-billed birds. Others are of a "mixed" type, and many of these do not resemble the eggs of any known species.

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* 'Altes und Neues aus dem Aushalte des Kuckucks,' von Dr. Eugène Rey, pp. viii+108. Leipzig (Freese), 1892. 8vo.

(4) In addition to *Phœnicurus phœnicurus* (Common Redstart) and *Fringilla montifringilla* (Brambling), in whose nests the Cuckoo's egg almost invariably resembles those of the foster-parent in colour and markings, those in the nests of *Sylvia communis* (Common Whitethroat), *Sylvia simplex* (Garden-Warbler), *Acrocephalus arundinaceus* (Great Reed-Warbler), and *Acrocephalus palustris* (Marsh-Warbler), are comparatively often of the same type. In the case of all other species the resemblance is much more occasional, and apparently never occurs in the case of *Troglodytes troglodytes* (Wren), *Accentor modularis* (Hedge-Sparrow), and the genus *Phylloscopus* (Chiff-chaffs and Willow-Warblers).

(5) A resemblance to the actual eggs in the nest does not often occur, even in the cases of the Redstart and the Brambling.

(6) Most female Cuckoos deposit their eggs in the nests of that species by which they themselves were reared, and only entrust them to other species when forced to do so, and then only to such as build similar nests.

(7) Most female Cuckoos deposit their eggs in nests in the same, and often rather restricted, locality.

(8) Neither the ovary nor the development of the eggs displays any abnormality in comparison with those of other species.

(9) The Cuckoo lays some twenty eggs each year. Possibly it is this high number which compels her to entrust them to other species.

(10) Laying takes place on alternate days.

(11) Normally each Cuckoo lays eggs of the same, or virtually the same, variety all its life.

(12) Only one egg is placed in any one nest.

(13) If two or more eggs are found in the same nest they have been placed there by different females.

(14) The laying period corresponds to that of the foster-parents, and differs considerably in different localities, both in duration and date.

(15) In placing its egg in a nest the Cuckoo usually removes one or more of the eggs of the foster-parent.

(16) This often occurs a day before the egg is placed in the nest.

(17) When placing its egg in the nest, or ejecting those of the foster-parent, the Cuckoo often has heated struggles with the owners, which frequently result in the egg being destroyed.

Assigning of Eggs to Specific Females.

Now if the above seventeen conclusions are accepted as correct we have a fairly complete history of the Cuckoo's nesting-habits. But when we review the evidence on which they are based we find they rest mainly on Dr. Rey's claim that he was able to assign each egg found to a specific female. We have, therefore, to consider first of all if this claim can be upheld.

He states that, according to the observations and experience of all oologists, it is a rule that not only the individual eggs, but also the clutches laid by each female, have a certain distinctive individuality, which can only be explained by certain peculiar conditions in the sexual organs of the female, which enable her eggs to be identified from those of all other females of the same species. Further, that when, in addition to a minute agreement in colour and markings there is also a close resemblance in shape, measurement, and weight, it becomes possible, especially in a species like the Cuckoo, whose eggs vary greatly in colouring, to differentiate between those laid by each female.

Now although great weight must be attached to the statements of such a careful and distinguished observer as Dr. Rey, and admitting that the eggs laid by each female have normally a resemblance to each other in colour and markings, I very much doubt if many oologists will support his claim to be able to assign any egg to a certain female, and this, indeed, is directly contrary to my own experience and that of others.

It is, of course, evident that if there were only two Cuckoos in a certain district, one of which laid eggs of a rufous type and the other eggs of a grey type, it would be easy to assign them to a specific female, and this would also apply to eggs having an unusual colouring, or abnormal shape due to some irregularity in the oviduct; but this is quite a different matter to Dr. Rey's claim that he could assign every egg found in a district near Leipzig to one of thirty-four different females, many of whom, from his description, laid eggs of very similar types.

I think, for instance, that most oologists would recognise the impossibility of rearranging into correct clutches a mixed assortment of eggs of the Gulls, Terns, or other species in which the colouring varies considerably, and I have often seen clutches of these eggs, clearly laid by the same bird, in which individual eggs differed strikingly. And the difficulty would, of course, be even greater in dealing with eggs of such species as the Skylark, Meadow-Pipit, and others. Nor would it be possible to visit even a small colony of Guillemots in two successive years and pick out eggs laid by the same female.

What grounds have we, then, for considering the Cuckoo an exception?

Further, it is an acknowledged fact that one or two eggs in each clutch laid by the Tree-Sparrow are distinctly paler than the others, while uniform blue eggs have been found in otherwise normal clutches of the Linnet and Song-Thrush; and, indeed, examples of variations in colour and shape amongst eggs of the same clutch are by no means uncommon, and even Dr. Rey himself points out that Walter, after seven years' experience in Pomerania, found all Cuckoos' eggs the same colour and indistinguishable from each other.

I may add that I have in my collection two Cuckoos' eggs, both taken in nests of the Hedge-Sparrow, and in a locality where I feel sure there was only one female Cuckoo, and, although these are similar in type, I do not think any oologist would be prepared to assign them definitely to the same bird.

Dr. Rey publishes tables in support of his statement, giving details of the eggs assigned to each female, and it is interesting to analyse one or two of these :—

(i.) Example No. 26.—Female No. 54.—Type of egg "Garden-Warbler—Lesser Whitethroat" (*i. e.* a mixed type between the two), of which eight eggs, all found in nests of the Red-backed Shrike in 1891 and 1892, vary as under in measurement and weight :—

·82″ × ·63″, weight 171 grammes (1891).
·84″ × ·63″ ,, 199 ,, (1891).
·88″ × ·65″ ,, 227 ,, (1892).

It is noticeable that all the eggs taken in 1892 were larger and heavier, as might naturally occur with age and distension of the oviduct.

(ii.) Example No. 27.—Female No. 55.—Type same as above. *Eggs very similar, but larger, and the markings less profuse and finer* (the italics are mine—R. F. M.).

Three eggs taken in 1891 vary as under :—

·86″ × ·63″, weight 188 grammes.
·90″ × ·63″ ,, 188 ,,

It will be observed that the first egg is *not* larger than the last one in the first example, and one cannot help wondering how these eggs could have been definitely assigned to two different females in two different years.

Again, we have the following :—

(iii.) Example No. 58.—Female No. 6.—Type "Whitethroat." Colour rather dark greyish-green, boldly clouded with grey and with many small, fine, black markings.

Variation of four eggs taken in 1878 :—

·84″ × ·63″, weight 220 grammes.
·82″ × ·65″ ,, 230 ,,

(iv.) Example No. 61.—Female No. 23.—Type "Whitethroat." Colour green, clouded with grey, and with some small black markings.

Variation of two eggs taken in 1878 and 1881 :—

·86″ × ·66″, weight 230 grammes.
·88″ × ·64″ ,, 230 ,,

The remarks made above seem to apply equally to these two examples, and other instances in which the differences appear extraordinarily slight could be adduced.

Now even if we admit that verbal description may be inadequate to describe the small but distinct variations in egg-coloration, it still seems clear that eggs, such as the above, which Dr. Rey definitely assigns to different females, did not differ so much as those variations met with in clutches of other species.

He quotes, however, one interesting example (No. 11—Female No. 28) in the eggs of which the shape and shell-substance were abnormal, probably owing to a defect in the oviduct, and to this reference will be made later.

Finally, he quotes a case of two eggs, found by himself and his son, *with an intervening period of fifteen years,* which he describes as being so identical that no oologist could doubt the fact of their having been laid by the same bird! I am inclined to think, however, that this occurrence rather staggered him, for he appears to suggest that they may have been laid by a mother and daughter, the latter having inherited the egg-coloration.

It seems, then, that Dr. Rey's claim to be able to assign each egg to a specific female is, to say the least of it, questionable in many cases, and yet if this cannot be upheld, the strongest evidence he has in support of his conclusions Nos. 6, 7, 9, 10, 11, 12, and 13, vanishes, and any certainty regarding them is greatly decreased.

Egg-coloration.

When we proceed to deal with Dr. Rey's conclusions in detail we find that the 1st. 3rd, 4th, and 5th deal with the question of "egg-coloration," and here again we are confronted with a difficult problem, full of rather contradictory facts, which are not easy to fit into any theory, but which constitutes an important feature in the consideration of the Cuckoo's nesting-habits. And as the coloration of Cuckoos' eggs is subject to the same rules as those of other birds, a short digression seems justified.

So far as I am aware, the causes governing the coloration of eggs are unknown, though many theories have been adduced. If we assume that birds are descendants from reptiles, as there seem good reasons for doing, it follows that originally their eggs were white or yellowish-white, and, consequently, that birds laying such eggs have remained true to type, while such species as lay brightly-coloured eggs have departed most widely from it.

We may also notice that such species as lay in concealed places, like the reptiles, have, as a rule, remained true to type, while others whose nesting-habits have departed widely from those of their progenitors have also changed greatly in the colour of the eggs, possibly under the influence of the law of adaptation.

Professor Alfred Newton formed the opinion that circular markings on the egg-surface are deposited on the shell a short time before extrusion, and that, as the egg progresses through that part of the oviduct in which it receives the colouring matter, many specimens get smears or blotches, which are protracted in some direction. He therefore considered that the circular spots denote the deposition of pigment while the egg is at rest, while blurred markings occur while it is in motion, and such motion appears to be forward and rotary, often producing spiral smears. And as, on nearly all occasions, the larger end is protruded first, it is, as a rule, the more heavily marked; but when, as sometimes occurs, the reverse is the case, the small end is the more heavily marked. The markings lying deep in the shell, and the ground-colour, are due to some earlier dyeing process, probably due to bile-matter.

This, however, does not solve the difficulty of the various colours which so often occur in eggs of the same species, such as the Cuckoo, Guillemot, Tree-Pipit, Gulls, and Terns, nor does it explain the occurrence of a rufous or pink type in eggs of the Blackcap, Dartford Warbler, and other species.

Dr. Rey and others, dealing with the Cuckoo, have adduced the theory that the food supplied to the young, which differs with the foster-parents selected, has an influence on the future egg-coloration; but this seems an untenable, though ingenious, solution. For if young birds be removed from the nest at an early age and fed on more or less artificial food, no alteration in the colour of their eggs occurs, and the Canary, after generations of rearing on foods which must differ from those eaten in a natural state, and, more remarkable still, after the type of plumage has been greatly changed, still continues to lay eggs of the original type. Nor is it difficult to recall other instances to show that this idea, though attractive, only illustrates the tendency to fit facts to suit theories, for, if true, it would elucidate the mystery of the varying colourings of Cuckoos' eggs.

In some instances it seems possible to trace a connection between egg-coloration and locality. It is noticeable, for instance, that eggs of the Common Guillemot from many colonies show a distinct predominance of a certain coloration such as a white, yellowish, or deep blue ground-colour, and in a certain locality in the Midlands I observed that the majority of eggs of the Garden-Warbler were of an unusually pale type. On the other hand, a visit to a colony of Gulls or Terns at once disposes of any attempt to make this a general rule, and the only possible deduction may be that certain families laying eggs of a given type may have established themselves and flourished in such localities.

All the facts in the problem are very conflicting, and only the following general rules can be stated :—

(*a*) Birds nesting in holes, as a rule, lay white eggs. (The converse, however, that all birds laying white eggs nest in holes is by no means so true.)

(*b*) When the plumage of the female harmonizes with the surroundings of the nest, the eggs have a protective coloration, and this is usually the case with birds nesting on the ground.

(*c*) Where both sexes are brightly coloured the eggs are usually laid in concealed places and are not handsomely coloured.

(*d*) Many species laying whitish eggs in places exposed to view cover them over when leaving the nest.

It seems very doubtful if the problem of egg-coloration will ever be solved, and it may be that food, climate, and "strain" all exercise an influence, as is probably the case in the human race. It might throw some light on this if we knew whether clutches of a given species, taken in high latitudes or altitudes, showed any constant variation from others taken in more southern climes. It seems possible that the process of evolution and the change in the nesting-habits of many species owing to the changing conditions of civilization would produce varying types of egg-coloration, while the law of adaptation would ruthlessly eliminate any progression beyond a certain limit, and, consequently, variations in type would persist so long as they did not contravene this law. Further, such individuals or families as laid eggs less well adapted in colour to the requirements of protection or only suitable to certain localities, would remain in a minority, as is perhaps the case with those individual Blackcaps, Rock-Pipits, and other birds which lay eggs of a rufous or distinct type.

But in the case of the Cuckoo, where there is a large choice in nesting localities and a wide range in suitable egg-coloration, a greater number of families laying differently coloured eggs than in other species would have survived.

Coloration of Eggs of the Cuckoo.

We now pass on to the concrete case of the coloration of the eggs of the Cuckoo, which is dealt with in the 1st, 3rd, 4th, and 5th of Dr. Rey's conclusions, and the facts we have to work on are as follows:—

(*a*) Dr. Rey, after exhaustive investigation, shows that the legendary resemblance of Cuckoos' eggs to those of the birds in whose nests they are placed is much exaggerated. He produces tables showing a comparison of 597 Cuckoos' eggs with those of the 15 different species in whose nests they were deposited.

Of these:—

180 or 30·2 per cent. resembled the eggs of the foster-parent.

164 or 27·5 per cent. resembled the eggs of other species at times selected as foster-parents.

209 or 35 per cent. were of a "mixed" type, intermediate between the eggs of two species.

44 or 7 per cent. were of a distinctive type of their own.

Further, of the first 180 only 76 exactly resembled the eggs of the actual clutch with which they were found, and of these 57 were in nests of the Common Redstart. The remaining 104 were unmistakably *of the same type* as those of the foster-parents, but were *distinct from the actual clutch* with which they were found. Hence we find that Cuckoos' eggs exactly resembling those of the nest in which they are found only amount to 13 per cent., while those resembling the general type of the species selected are about 45 per cent.; but the number of species they resemble in type is limited, and, according to Rey, mainly comprises the Redstart, Brambling, White Wagtail, and the Garden-, Reed-, and Marsh-Warblers. His observations, however, were made on the Continent, and in Britain the species they mostly resemble are probably the Meadow-Pipit and the Sedge- and Reed-Warblers.

(*b*) In some districts on the Continent the eggs of the Cuckoo are almost invariably of the same type as those of the most abundant species, and consequently that which is most often selected as foster-parent. Amongst many eggs recorded by Rey from the Dessauer Heide and northern Finland not a single one differed from the Redstart type, and in these localities that species is almost invariably selected as foster-parent; whereas in Lapland, where the eggs are practically always deposited in nests of the Brambling, a very large percentage resemble the type of that species. Further, according to "Westfalen's Thierleben" (ii. 20), Cuckoos' eggs from the moors of Oldenburg always resemble the type of the Meadow-Pipit, the usual foster-parent in that locality.

(*c*) In other localities, on the contrary, Cuckoos' eggs are often found in the nests of species they *never* resemble, such as those of the Wren or Willow-Warblers. Walter found over 150 specimens in nests of the Wren, yet, according to his observations, this species, and the Willow-Warblers also, invariably desert their nests in consequence, as the Cuckoo in depositing her egg enlarges the entrance-hole and damages the nest.

(*d*) In Britain the Hedge-Sparrow is frequently selected as foster-parent, and the eggs are, as a rule, successfully hatched. Yet Cuckoos' eggs found in the nests of this species are never blue, and Rey says this is also the case on the Continent.

(*e*) The eggs of the Cuckoo vary more in colour and markings than those of any other known species. The ground-colour ranges from white, yellowish, greyish, or violet-grey, to greenish, bluish, brownish, reddish, etc., and the markings, which at times are clearly defined, or at times shade into the ground-colour at the edges, are blotches, spots, or scrolls of black, brown, yellowish, ashy-grey, reddish, reddish-brown, violet, greyish-green, etc. As a rule they are most profuse round the larger end and form a zone. Some specimens are uniform bluish-green or blue, with, at times, a few faint spots of rusty-red.

(*f*) Generally speaking, by far the most complete resemblance in colour to the eggs of the foster-parent occurs in the case of foreign species of Cuckoos, which deposit their eggs in the *open nests* of species nearly related to each other.

(*g*) In Germany, however, the most complete similarity in the eggs of *C. canorus* most often occurs when the eggs are placed in the nest of the Common Redstart, a species which breeds *in holes*.

Such curiously contradictory facts have, needless to say, produced very varying theories.

The general consensus of opinion, including such authorities as Baldamus, Rey, Professor Newton, and others, favours the theory that the Cuckoo, whenever possible, deposits her eggs in the *nest of that species by which she herself was reared*, and that, provided sufficient nests of such species are available, this habit is transmitted to her posterity and we have what are termed "Hedge-Sparrow Cuckoos," "Meadow-Pipit Cuckoos," etc.

It is also a generally accepted fact that each female Cuckoo lays eggs of approximately the same type all her life.

After this, however, the theories diverge rather widely. Baldamus, in 1853 and 1854, explained the resemblance of the eggs of the Cuckoo to those of the foster-parents by concluding that the Cuckoo, whenever possible, deposits her eggs in the *nests of those species whose eggs most resemble her own*, and only selects others when it is not possible to find such nests.

This was opposed "*in toto*" by Adolph Müller, who considered it the exception for any resemblance to occur, but his facts and arguments are neither numerous nor convincing. He states that the species selected as foster-parents will not only incubate eggs of a totally different colour to their own, but even bits of lime. Yet, later on, he quotes the cases of a Yellow-Hammer and Whitethroat who ejected the Cuckoo's egg, presumably, he says, because they detected the fraud, and hence deduces that they *can* distinguish strange eggs—a curious contradiction! He is also, by the way, responsible for the story that, according to the evidence of a Kaufmann Kiessel, a Cuckoo at St. Johann on the Saar incubated two of its own eggs and reared the young—a statement Rey rightly refuses to accept.

Künz then advanced the startling idea that the eggs in the nest of the foster-parent produce such an effect on the female Cuckoo that she lays an egg of the same colour!

Rey and Wasnam enunciated the theory, already discussed under "Egg-coloration," that the food supplied to the young Cuckoos by their different foster-parents influences the subsequent colour of the eggs they lay. They argue that, in certain more or less restricted areas, as distinct from whole countries or wide expanses, the resemblance of the Cuckoo's egg to those of the foster-parents is an almost invariable rule; in other localities it frequently occurs, while in others again it is quite the exception, and this latter is especially the case near large towns, where the original distribution of birds has been interfered with by the progress of civilization, resulting in many species becoming rarer or ceasing to breed there. As a consequence of this, the Cuckoo is unable to find a sufficient number of the nests she prefers and has to use others.

Hence it follows that, if a female Cuckoo lays eggs of the same type all her life, there will be an insufficiency, in such localities, of the nests she requires, and thus eggs of, say, the Whitethroat type will be found in nests of the Red-backed Shrike, etc. Dr. Rey then draws the conclusion that the more exclusively the Cuckoo entrusts her eggs to any one species the greater is their similarity, and, conversely, the greater the number of species selected by different females the less is the resemblance.

Rey also agrees with Baldamus that, when possible, the Cuckoo deposits its eggs in the nest of that species by which it was reared, and that consequently a resemblance in egg-coloration results from the repeated rearing of many generations by the same foster-parents. If, then, as he argues, the food supplied to the young Cuckoo influences the subsequent colour of the eggs the problem is solved, and "mixed types" of eggs and variations are easily accounted for by the Cuckoo being unable to find sufficient nests of the species that reared her, and being forced in consequence to entrust her eggs to others. For instance, if a female Cuckoo, reared by a Whitethroat and laying eggs of that type, were forced to deposit her egg in the nest of a Garden-Warbler, the young Cuckoo, if a female, would lay eggs of a "mixed" type.

But, as already pointed out, there are strong arguments against this theory, and it is not easy to accept.

Boraston refers to the theory that when the eggs of the Cuckoo resemble those of the foster-parent they are hatched, and that thus the strain of birds laying such eggs becomes "naturally selected," and that, when the resemblance does not exist, the eggs are not hatched and the strain gradually becomes eliminated. He argues, however, that, if this were so, the foster-parents would themselves become the "natural selectors," and that to make them responsible for "selecting" a type of Cuckoo's egg resembling their own and thus deceiving their posterity, is an untenable theory. Further, after examining 76 nests of 31 different species containing Cuckoos' eggs, he comes to the conclusion that the alleged specialization into types resembling those of the foster-parents shows no constancy, and that the difference between eggs deposited in nests of the same species is just as great as between those laid in nests of different species.

Professor Newton argues that assimilation in colour is unnecessary in the case of the Hedge-Sparrow, but that, since other species are more particular in accepting differently coloured eggs, assimilation to their types is more requisite, and that the operation of natural selection in egg-coloration would be most needed in those cases in which the foster-parents are not easily duped—that is in the cases occurring less frequently. And it is in such cases that it is found, since eggs deposited in nests of the Red-backed Shrike, Redstart, Buntings, and Icterine Warbler resemble those of these species: yet, in comparison with other birds, their nests are rarely used.

Boraston, however, comments on this—that, if so, it was by a more rigorous application of natural selection; that is, by refusing to hatch any Cuckoo's egg that did not closely resemble their own, these four species eliminated all would-be patrons except those laying eggs so like their own as to escape detection, and that, in consequence, only these four strains were preserved. He then adds that such a theory will hardly bear examination.

If, then, we reject the conclusions of Rey and Wasman, the question arises as to what theory we can substitute which will fit our facts. We are, I think, forced to admit that the resemblance in the colour of Cuckoos' eggs to the types of those of the foster-parents selected is not merely accidental, arising from the great differences in coloration, but that there is some fundamental law which Nature has ordained to give them the advantage of protective coloration.

It has always seemed strange to me that all the authorities, so far as I know, have accepted the idea that the nest is selected *before* the egg is laid, but this is probably due to the fact that eggs of the foster-parents are occasionally removed the day before the Cuckoo deposits its egg in the nest. Yet, as Dr. Rey points out, it does not necessarily follow that the Cuckoo deposits its egg in another nest *on the day on which it is laid*, though had the nest been already decided on there seems no reason why this should not be done.

I personally think that the main point in the problem is whether the Cuckoo selects a nest *because the eggs in it resemble her own*, or whether the fact of one particular species being selected for several generations has any effect on the egg-coloration, and I consider the former is far more likely to be correct. The latter assumption, as has been pointed out, presents many difficulties, whereas the former would appear to solve them.

This idea was, indeed, first started by Baldamus, and

Wasman even admits that the eggs in the nest probably afford the female a clue in identifying the species that reared her; and other authorities are of opinion that the Cuckoo, when possible, deposits her eggs in the nests of the same species that reared her. My own theory goes further than this. I think it is only natural to assume that each Cuckoo lays eggs of the same *type* all her life, and it is probable that the egg-coloration is transmitted, more or less exactly, from mother to daughter, and thus there are families or "strains" of Cuckoos laying eggs of a certain type. It is possible that the male may influence the egg-coloration, but this seems unlikely.

Now we may assume that Natural Selection would favour those Cuckoo families whose eggs most nearly resembled those of the foster-parents, and hence, for example, Cuckoos laying blue eggs would become numerous in districts where the Redstart was common, while it is obvious that if such coloured eggs had to be placed in the nests of other species they might frequently be rejected, and, consequently, this family would either die out by degrees or migrate to some other district where they could find eggs resembling their own. If this theory be correct it would, I think, produce the following results:—

(1) Cuckoo families laying eggs of a very distinctive coloration would either become very localized in districts where suitable foster-parents existed in sufficient numbers or would gradually die out.

(2) Cuckoos laying eggs of a more neutral colour and more nearly resembling the types of the species most suitable as foster-parents would become far more numerous, since they would have a wider choice of nests in which to deposit their eggs, and the colour would be a protection.

(3) Cuckoos laying eggs of the Wren or Willow-Warbler type would become very rare, since when their eggs were deposited in the nests of these species they would not be hatched, and, if placed in other nests, a large proportion would also not be accepted.

Now if we refer to the facts we possess regarding the coloration of Cuckoos' eggs (pp. 198–200), we find that the first of these suppositions is confirmed by (*b*) and the third by (*c*), and the fact that Cuckoos' eggs of this type are seldom met with. The preference of parasitic species for "domed" nests has been called attention to in reference to the Cow-birds, and when other nests with suitably coloured eggs were not available, the tendency might be to use "domed" ones. Our second supposition is supported by general experience, and the only two facts that present any difficulty are (*d*) and (*g*).

The latter, however, is not difficult to fit in, since although the Redstart nests in holes, it is evident that when the female Cuckoo can insert her egg she can also see the colour of the others. Fact (*d*) is certainly curious, though Dr. Rey's statement, referred to previously, that eggs of the Hedge-Sparrow type do not occur is hardly correct, since those of the Redstart type, which are virtually the same, certainly do. Yet the fact remains that the Hedge-Sparrow is a common foster-parent, but eggs found in the nests of this species seem never blue! Possibly this may be due to the fact that this bird is very common; its nests are not usually well concealed and may be found practically throughout the nesting-season. The Cuckoo may know by instinct that the Hedge-Sparrow will accept eggs of any colour, and consequently uses it as a "makeshift" when other suitable nests are not available.

This explanation, it must be admitted, is unsatisfactory, and undoubtedly this particular evidence seems to point to the conclusion that it is the foster-parents or the nest, and not the colour of the eggs, that influences the Cuckoo in her choice; yet such a theory is more difficult to fit in with our other facts.

And moreover, if the theory regarding the connection between food and egg-coloration were correct, blue Cuckoos' eggs would be common in Britain, and this is not so!

I have, on occasions, experimented in localities where the

Cuckoo was laying, by rather exposing to view nests of the Hedge-Sparrow, and making the owners desert, and then leaving an incomplete or complete clutch in the nest for some time, but I have never obtained a Cuckoo's egg in such nests.

Possibly the nest and the foster-parents by which she herself was reared may both have some effect on the Cuckoo, and we may suppose that, if she cannot find a nest in which the eggs resemble her own, she then places her egg preferably in the nest of that species by which she herself was reared.

My view is that the Cuckoo, whose whole nature seems careless and improvident, lays her egg in some suitable spot and also very often leaves it there, with perhaps a second or third laid subsequently, and then commences a search for nests in which to deposit them. In any case, after laying her first egg the Cuckoo would be able to recognise the eggs of other species which resembled her own more or less closely, and this would explain the large proportion of the eggs which resemble the general type of those of the foster-parent. Those that do not, are presumably due to inability to find a suitable nest.

It seems to me far more likely that the Cuckoo is influenced by the colour of the eggs in the nest more than by the actual nest itself or the birds to which it belongs, though it seems possible that she would be attracted by the locality and surroundings in which she herself was reared, and would seek nests in a similar place.

Moreover, one may conclude that, to avoid causing alarm and being "mobbed" she would endeavour to examine the selected nests while the owners were away and thus might not see the foster-parents, in which case she could not be influenced by them.

The main point, therefore, on which further information is required seems to me to be whether the nest is selected *before* or *after* the egg is laid, and this is exceedingly difficult to obtain.

I can only quote two instances from my own observations which seem to throw any light on the subject :—

(i.) In 1909 I was staying for three weeks, at the end of May and in early June, in a locality in the Midlands where Cuckoos were very plentiful. Early one morning I saw from my window two Cuckoos, clearly a male and a female, settle on the bough of a high elm close by, and, shortly after, the female waddled down the bough to a fork in the main stem, near the tree-top, and was lost to view in the foliage. The male then flew off, calling repeatedly, but the female remained some time before leaving. From the behaviour of this pair I have a very strong suspicion that an egg was laid in the tree-fork, and have always regretted that I was unable to investigate this, though I am convinced there was no nest of any other species near this fork.

(ii.) About the same time (the second week in June) I found a Sedge-Warbler's nest, which had been robbed, and passing this again some five or six days later I found to my surprise that it contained a Cuckoo's egg, and this egg, which is in my collection, has a *greenish discoloration* round the smaller end, exactly similar to that which occurs when eggs are left lying for some time on damp moss or grass.

Now I think it is clearly unlikely that the Cuckoo selected this nest before laying her egg, and though it may be argued that the nest she had selected was destroyed, my view is that, having laid her egg, she failed to find a suitable nest, as the Sedge-Warblers were all sitting or had young, and the Reed-Warblers had not commenced to lay, and, not caring to leave her egg any longer, she deposited it in this nest to take its chance.

It is unfortunate that, as regards the periodat which the nest is selected, there is no reliable information about the Cow-birds, and though Major C. Bendire, of the United States National Museum, holds the view that the nest is chosen before the egg is laid, he apparently has no definite reasons for this theory.

Finally, I may add that I do not for a moment suggest that the Cuckoo carries her egg with her till she finds a suitable nest, as this might entail a protracted journey. But I think that she lays it in some concealed spot on the ground, or in a tree-fork, and leaves it there until she has found a nest in which to deposit it.

The Distinctive Features of Cuckoos' Eggs.

Passing on now to Dr. Rey's second conclusion, the distinctive feature of the Cuckoo's egg, as he states, is the comparatively greater weight of the shell in proportion to the size, its greater thickness, and different grain. The colouring in many instances gives no clue, though Dr. Rey says that the markings of most Cuckoos' eggs vary distinctly as regards the sides opposite each other, and that small, distinct, round, blackish spots are a common characteristic.

Nor does the size afford any clue, the measurements of 625 eggs by Dr. Rey giving the following results :—

Maximum : 1·00″ × ·70″ *or* ·98″ × ·72″.
Minimum : ·78″ × ·61″ *or* ·80″ × ·59″. (A measurement of ·81″ × ·57″ is also recorded.)
Average : ·88″ × ·64″.

As regards weight, however, resulting from the greater thickness and strength of the shell, we have the following comparison with eggs of the Red-backed Shrike and Crested Lark, which are almost identical in size :—

	Maximum weight.	*Minimum weight.*	*Average.*
	grammes.	grammes.	grammes.
Red-backed Shrike........	212	148	186·5
Cuckoo	325	165	232
Crested Lark	230	150	191·7

It is of interest to note in this connection that the eggs of the Cow-birds are also stronger in shell than those of other similar species, and vary greatly in colour and shape.

They hatch in ten or eleven days, and thus the young have an advantage in this respect over those of their foster-parents, and this, with their larger size and rapid growth, enables them to obtain all the food, and the other inmates of the nest, or the weaker Cow-birds, die of starvation. Also the germ in the egg possesses extraordinary vitality and remains alive even if not incubated for a long period, and this may be the same in the case of the Cuckoo.

As a general rule, then, Cuckoos' eggs can be identified satisfactorily from those of the foster-parents, though abnormal eggs of other species are to be found in collections labelled as those of Cuckoos; and some of these might on occasions pass as such, even with experts, when larger size and abnormal shell-thickness occur together which, however, is seldom the case. The shell of the Cuckoo's egg is smooth but not glossy, and its relatively small size and thick shell are admirable provisions of Nature to enable it to be carried in the beak and deposited in the nests of other species.

How many Eggs does a Cuckoo lay each year?

Leaving Dr. Rey's 8th conclusion for the present, let us consider the 9th and 10th, in which he says that each female lays some twenty eggs each year, and that laying takes place on alternate days.

This, of course, is again based on his claim to be able to assign every egg found to a specific female, and, as already stated, I think this very questionable.

Most authorities estimate the number at from five to ten, and in the case of the Cow-birds eight to twelve is the general opinion, though Major Bendire says that probably several days elapse between the laying of each egg, and that the laying season appears to last two months.

Dr. Rey's claims in support of such a high number do not seem convincing. He quotes a Captain Krüger-Velthusen in Brandenburg as giving the number of eggs laid each year as twelve to seventeen, but seems to admit that the observations of Walter and others did not produce such a high estimate, and then supports his own theory as to the laying on alternate days by tables, but expressly states, which I consider of importance, that in most cases *there is no proof that an egg is laid on the same day that it is found in the nest*, but that it may have been laid *from one to several days previously*.

This, incidentally, rather supports the theory that the nest is selected after the egg is laid, for, if before, there seems in many cases no reason for the delay. As regards Dr. Rey's tables, it will be sufficient to analyse four to see how he arrives at his conclusions.

(*a*) Six eggs of female No. 8 were found as follows:—Two on the 5th of May, one on the 8th of May, and one on the 10th, 15th, and 16th of May respectively.

Allowing the two days' laying period, which he considers correct, Dr. Rey suggests these eggs were laid on the 3rd, 5th, 7th, 9th, 11th, and 13th of May.

(*b*) He states:—In some twenty cases my son succeeded in establishing the fact that the eggs had actually been laid on the day they were found. Thus, on the 20th of May, 1891, he found two Shrikes' nests close to each other, one containing four eggs of that species and the other being empty. The following day the first nest contained two Shrikes' eggs and a Cuckoo's egg of female No. 37. On the 23rd of May the second nest contained a Shrike's egg, and also a Cuckoo's egg of the same female. Thus the first egg must have been laid on the 21st and the second on the 23rd of May.

The conclusion is not clear!

On both the 27th and 29th of May Dr. Rey found other eggs of this female, and states he was able to establish the fact that a fifth egg, found on the 31st of May, was laid on that day, *because the previous day it* (the nest) *had only contained Shrikes' eggs*.

Other eggs, attributed to this same female, were found on the 4th, 12th, and 18th of June.

Now, so far as I am aware, in such cases there are no means of telling whether an egg found in a nest has been laid on any given day, and, since Dr. Rey himself admits that eggs may not be deposited in nests on the day they are laid, it is difficult to see on what his conclusions are based.

(*c*) He then, however, quotes the interesting instance, referred to on p. 197, in which the eggs of a female were abnormal, probably owing to a defect in the sexual organs, and as, in this case, it is clearly possible to assign them to a definite bird, the tables he gives are worth close study.

5 eggs were found in 1889 on the 30th of May and the 7th, 14th, 25th, and 26th of June.
8 „ „ „ 1890 on the 22nd, 23rd, and 29th of May and the 3rd, 5th, 8th, and 12th of June.
9 „ „ „ 1891 on the 14th, *20th*, *26th*, and *28th* of May and the 3rd, 9th, 12th, 16th, and *19th* of June.
7 „ „ „ 1892 on the *24th* and *26th* of May: *11th*, 14th, 15th, and *27th* of June; and the 1st of July.

Dr. Rey states that the eggs found on the dates in italics were laid on these precise days, and that all the eggs were in nests of the Red-backed Shrike.

Now it will be seen that the highest number of eggs found in any one year was *nine*, and yet it may be assumed that the locality was well searched. Also, an examination of Dr. Rey's tables shows that only in one instance (referred to below (*d*)) were more than nine eggs of the same female found in any one year. He accounts for this by the many eggs he considers get broken and destroyed; still it is hard to find in the tables any indication of such a high number as twenty for a female in a year, and it must be assumed that Dr. Rey and his son made every endeavour to find all the eggs. The dates, too, show curious changes and intervals, and seem to dispose of the theory that the eggs are laid at any regular periods, or in two clutches, as in the case of other species; but, naturally, once the Cuckoo adopted parasitic habits the necessity for this would cease.

(*d*) Finally, we have the one case, referred to above, in which more than nine eggs were found in a year, as Dr. Rey claims to have discovered seventeen, all of which he could assign to "No. 33—Female No. 52" between the 21st of

May and the 5th of August, 1891. But the type of these eggs does not appear to have been a distinctive one, and is described by him as a mixture between *Motacilla* and *Sylvia*, with a dull greenish-yellow ground-colour, and markings of greyish-brown over the whole surface, and a wide zone round the larger end; and as both the weight and measurements varied to some extent, they may have been laid by two females, or a mother and a daughter. Indeed, the general evidence as to the number of eggs laid yearly and the intervening periods seems to me very slight.

Dr. Rey concludes that many eggs get destroyed, and quotes instances of having found broken shells under nests or eggs built into the lining of nests. It is also stated that, in the case of the Cow-birds, many eggs do not hatch, some being placed in deserted nests, others in nests not laid in—which are consequently abandoned, while some are even dropped on the ground by the female, which appears to be even more careless than the Cuckoo.

We also know that among such kinds of domestic fowls as do not incubate their eggs, the tendency is to lay a far greater number.

Further investigation is much needed and might be most successfully carried out where the Cuckoo is scarce and only one or two females are found; but unfortunately this usually occurs in wild expanses where the Meadow-Pipit is numerous, and it is almost impossible to find all the nests of this latter species.

From my own observations in districts where the Cuckoo was both very numerous, and also limited to one or two pairs, the number of eggs and young found have never led me to suppose that more than nine or ten eggs were laid annually, even allowing for a good percentage of breakages and eggs not discovered, and I doubt if the number of eggs destroyed is as large as Dr. Rey supposes.

Also, the evidence seems to me to indicate that the eggs are laid at irregular and varying intervals. The Cuckoo is believed to be polygamous, and hence the laying of eggs may depend on the presence of the males. With the Cow-birds, the majority of which are polygamous, the males are said to outnumber the females by three to one, possibly for this reason, and the laying season is thought to last two months, but I know of no data to suggest that in the Cuckoos the males are more numerous than the females.

Dr. Rey's remaining Conclusions.

As regards Dr. Rey's remaining conclusions, there seem no special grounds for comment. It may, I think, be accepted from his data and general information that each Cuckoo deposits its eggs in a restricted locality and probably returns to the vicinity in which it was itself reared, and the data given regarding the female which laid abnormal eggs seem to establish this, and also the fact that each Cuckoo, whenever possible, selects nests of the same species, the two exceptions in the case of the above-mentioned female being the last eggs found on the 26th of June, 1889, and the 12th of June, 1890, when presumably no such nests were available.

Also, as stated in conclusions 12 and 13, it is quite the exception to find more than one Cuckoo's egg in any nest, and Dr. Rey states that, out of 1216 clutches with Cuckoos' eggs reported to him only 49 had two eggs. In one case three eggs were found in the nest of a Robin and in another case three in the deserted nest of a Wagtail, but in both cases the eggs were of quite different types, and clearly laid by different females.

An exceptional case, however, is quoted from Thuringia, where a Red-backed Shrike's nest found on the 18th of May, 1891, contained two eggs of this bird in it and two of the Cuckoo, and as the latter were practically identical in colour, markings, and size, and also, together with another egg found on the 25th of May, were deformed in shape owing to some peculiarity in the female, there is no doubt that they were laid by the same bird. Such cases, however, are very rare, and seem clearly due to a shortage of suitable nests in the locality in question.

Here, again, the often referred-to Cow-birds differ, since from one to seven eggs of some species are found in the same nest, two or more being probably laid by the same bird.

There are also no grounds for doubting the correctness of Dr. Rey's conclusion that the laying period varies greatly in different localities, both in date and duration, and corresponds with that of the species selected as foster-parent, though it is not so easy to reconcile this with his view that each female lays some twenty eggs yearly, since, if laid on alternate days, this means forty days out of a possible period of some three months.

Finally, as regards his last conclusion, one would imagine that, whenever possible, the Cuckoo would insert its egg in the nest when the rightful owners were absent, both to avoid alarming them and meeting with opposition, and thus I rather doubt if heated struggles with the foster-parents are not very exceptional.

There is still one point on which Dr. Rey gives little information :—*What subsequent interest, if any, does the Cuckoo take in her eggs and young?*

He mentions that the Cuckoo has been observed watching the nest for some days afterwards, and that, on occasions, other eggs are removed from the nest subsequently.

I can supply the following data in addition :—

(*a*) My late brother, when at school, found a Hedge-Sparrow's nest with a Cuckoo's egg in it, which, luckily, was in the headmaster's garden and secure from molestation. A few days subsequently he heard the Hedge-Sparrows in a great state of alarm and saw a Cuckoo visiting the nest, and on again examining it found that another egg of the foster-parents had been ejected.

(*b*) A farmer in Midlothian, who was interested in ornithology and whose word I have no reason to doubt, assured me that he had actually seen a young Cuckoo, in a Meadow-Pipit's nest close to his house, being fed by a Cuckoo.

There is also a case on record of a White Wagtail's nest, built in a fairly deep hole in a tree with a rather narrow entrance, which only contained a young Cuckoo, and as it seemed out of the question for the latter to have ejected the other inmates itself, it must be assumed that the parent had assisted. It thus seems clear that the female Cuckoo, at all events occasionally, does take an interest in the subsequent fate of its egg.

Finally, I once found a Cuckoo's egg in a Hedge-Sparrow's nest, and, on blowing the eggs, discovered that the former was considerably more incubated than the others, which were nearly fresh. This I can only explain by the theory that the Cuckoo at times changes her egg from one nest to another, possibly for reasons of safety.

SUMMARY.

Having, then, dealt with the main theories and conclusions concerning the breeding-habits of the Cuckoo, the results I arrive at are as follows, those based on theory being marked with an asterisk :—

1. *The Cuckoo is probably polygamous.

2. The eggs vary more in colour and markings than those of any known species.

3. Their main distinctive features are the comparatively greater weight, thickness, and strength of the shell.

4. Most Cuckoos' eggs resemble the normal type of those of a certain number of the species which are usually selected as foster-parents ; others are of a "mixed type," intermediate between two such species or of a "distinctive type" of their own. The percentage of eggs *exactly* resembling those of the clutch in which they are found is only about 13 per cent., while those resembling the *general type* of the species in whose nest they are found amount to some 45 per cent.

5. The resemblance occurs most often in the cases of the Common Redstart, Brambling, Whitethroat, Garden-Warbler, Reed-Warbler, Marsh-Warbler, Sedge-Warbler,

and Meadow-Pipit. In all other species it is much more occasional, and it *never* occurs in the case of the Wren, Willow-Warbler, Wood-Warbler, Chiffchaff, and Hedge-Sparrow; yet, of these latter, the first four invariably refuse to hatch the egg, while the Hedge-Sparrow willingly accepts it—a strange fact which is hard to fit in to any theory.

6. In some localities the percentage of eggs resembling the type of the species in whose nests they are deposited is very high, nearly all being similar; in others it is very low. The high percentage usually occurs where one species is mainly used as foster-parent, and the low percentage where several are used.

7. *The explanation of the resemblance of Cuckoos' eggs to the normal type of those of the foster-parents is probably that the nest is selected *after the egg is laid*, and that the female Cuckoo is influenced in her choice mainly by the colour of the eggs in the nest and the resemblance they have to her own. Quite possibly she may also be influenced to some extent by the nest being similar to that in which she herself was reared, especially when she cannot find eggs which match her own. Also she would normally return in spring to the locality in which she herself was reared. Further, when she had once laid, she would know the colour of her eggs and could select nests beforehand if she came across them.

8. *The prevalence of certain distinctive types of eggs in specific localities can be assigned to the law of adaptation. The strain of Cuckoos laying distinctive eggs, *e. g.* blue or very rufous types, would have a large number destroyed, since many species would refuse to accept them and thus this strain would gradually die out except in localities where many nests with similar eggs were to be found. On the other hand, the strain of Cuckoos laying more neutral-coloured eggs would have more young reared, since their eggs would be more easily accepted and thus would flourish in most districts.

9. *Most female Cuckoos return to the same locality as that in which they were themselves reared, and as it may be assumed that their ancestors selected nests whose eggs resembled their own, and that egg-coloration is more or less hereditary, they find suitable nests in such localities. Hence, where several foster-parents are available in one locality, Cuckoos laying eggs of different types will collect, and there is more likely to be a shortage of suitable nests and consequently a lower percentage of resemblance.

10. *The Hedge-Sparrow, which is singularly ready to adopt eggs of any colour, is the favourite "makeshift" foster-parent.

11. *The number of eggs laid yearly is probably nine to twelve.

12. *Laying appears to take place at irregular intervals.

13. *The date of the laying period varies in different localities and corresponds with that of the species selected as foster-parents.

14. *Most Cuckoos lay in the same rather restricted locality.

15. Each female lays eggs of the same type all her life.

16. *The eggs are probably laid on the ground amongst vegetation or in the forks of trees, and at times may be left there with a second or even third egg until suitable nests are found.

17. Only one egg is placed in any nest, and if two or more are found in the same nest they belong to different females.

18. When placing its egg in a nest the Cuckoo usually removes one or more of those of the foster-parent. Occasionally this is done the day before, and at times other eggs are removed subsequently. In the case of the Cow-birds, the eggs of the foster-parents are either ejected or have a minute puncture made in them, either by the beak or sharp claws, so as to prevent their hatching.

19. At times a vigorous resistance is met with from the owners of the nest, resulting in the Cuckoo's egg being destroyed, but usually it is accepted and the young Cuckoo reared with extraordinary devotion by its foster-parents. In this connection it is interesting to learn that some species, such as the Indigo Bunting, will often desert their nests if the Cow-bird's egg be removed, but do not appear to mind the loss of one or two of their own eggs.

20. *Probably the Cuckoo inserts its egg, whenever possible, in the absence of the lawful owners of the nest.

21. Neither the ovary nor the egg-development of the Cuckoo presents any abnormality in comparison to other species.

22. Shortly after being hatched the young Cuckoo ejects all its companions from the nest, and if by chance two young Cuckoos are hatched in the same nest the weaker is ejected. Exceptions occasionally occur, due probably to the nest being in a deep hole, etc., and ejection not being possible.

23. *The female Cuckoo appears, at least at times, to take some interest in the future development of her eggs, subsequently removing other eggs from the nest, and assisting on occasions in the process of ejection and even in feeding her young.

In conclusion, I wish to state clearly that this paper has not been written with any idea of minimising the important results achieved by Dr. Rey and others, who devoted endless labour to trying to throw some further light on this involved question and to whose efforts much of our knowledge is due. My object has been to endeavour to show that the problem is still unsolved and to try to interest others in the subject. The difficulties in obtaining reliable information are so great that it seems that success can only be achieved by united efforts and by ensuring, so far as possible, against any chance clues being lost.

APPENDICES.

As being of interest the following are appended :—

(A) A list of the species breeding in England in whose nests eggs of the Cuckoo have been found.

Species commonly selected as foster-parents :—

Hedge-Sparrow.
Meadow-Pipit.
Tree-Pipit.
Greater Whitethroat.
Garden-Warbler.
Sedge-Warbler.
Marsh-Warbler.
Reed-Warbler.
Robin.
Pied Wagtail.

Species less commonly selected :—

Blackcap.
Redstart.
Red-backed Shrike.
Lesser Whitethroat.
Grasshopper-Warbler.
Wood-Warbler.
Chiff-chaff.
Grey Wagtail.
Greenfinch.
Linnet.
Yellow Hammer.
Wren.

Species occasionally selected :—

Nightingale.
Whinchat.
Stonechat.
Wheatear.
Song-Thrush.
Blackbird.
Willow-Warbler.
Goldcrest.
Great Titmouse.
Skylark.
Woodlark.
Chaffinch.
Twite.
Bullfinch.
Goldfinch.
House-Sparrow.
Tree-Sparrow.
Redpoll.
Hawfinch.
Spotted Flycatcher.
Pied Flycatcher.
Swallow.
Corn-Bunting.
Tree-Creeper.
Yellow Wagtail.
Rock-Pipit.
Starling.
Magpie.
Jackdaw.
Jay.
Green Woodpecker.
Ring-Dove.
Stock-Dove.
Turtle-Dove.
Little Grebe.
Long-tailed Titmouse (doubtful).

Cuckoos' eggs have altogether been found in the nests of over 120 different species.

(B) Further data regarding the nesting-habits of the Cow-birds of America.

Major Bendire gives the following instances of mistakes and imperfections in the procreant instinct of the Cow-birds :—

(1) The eggs are sometimes dropped on the ground and wasted.

(2) They are placed in forsaken nests.

(3) They are laid after incubation of the eggs has begun.

(4) One female lays several eggs in the same nest.

(5) Several females lay in the same nest.

(6) The male and female of some species destroy their own eggs by picking holes in them and sucking the contents.

On the other hand, he says that their eggs possess the following advantages :—

(1) The vitality of the embryo is very great and it survives after the other eggs in the nest have become addled, and eggs buried in the lining of nests have been found with the young ready to hatch, though as the young in the nest itself were some fourteen days old the Cow-bird's egg must have been about six weeks old and probably was incubated by the heat of the other young.

(2) They are usually larger and have a harder shell.

(3) They take only some eleven and a half days to hatch as against fourteen to sixteen days in the case of other similar species, and consequently have a chance if deposited in nests in which the other eggs are incubated.

XII.—*Notes on the Nidification of some Indian Falconidæ.*

By E. C. Stuart Baker, M.B.O.U.

(Plate V.)

There are a comparatively large number of Indian Eagles and Falcons the nidification and breeding-habits of which are now fairly well known, but concerning which there is but little on record, and that little scattered about in various books, papers, and periodicals which are not easily accessible to the oologist or field-naturalist who may desire to find out whether his own discoveries are new or not.

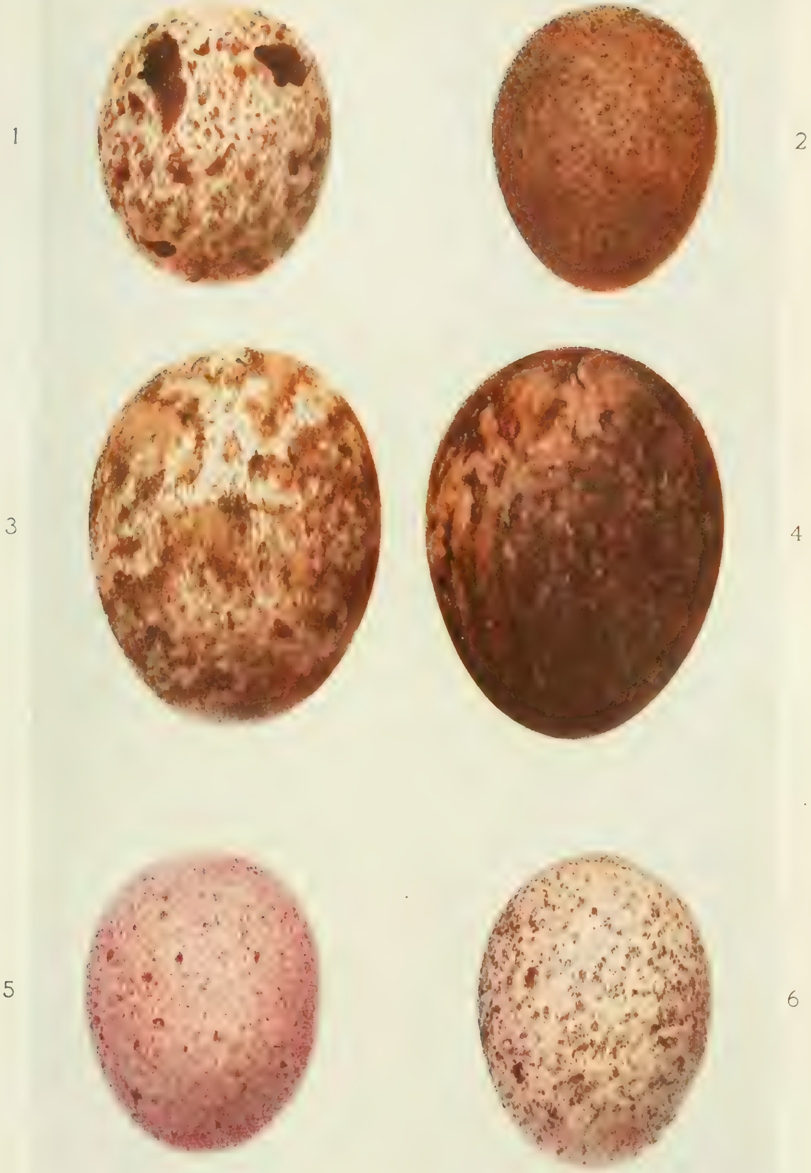
In many cases the breeding-habits of these magnificent birds are most interesting, and the bravery and determination of some of our Indian Eagles are not surpassed by the ancient tales of prowess accredited to the Golden Eagle in the Highlands of Scotland or to the Lammergeyer in the Tyrol. Generally, too, the surroundings of our rarer forms are so fascinating that they give an additional glamour to the search for their nests. Some haunt the bleak and forbidding hills of the North-west Frontier, where the scanty vegetation seems only to render more glaring the hot and dusty aspect of everything else; and where a shot may be the only notice one gets of more dangerous game on foot. Others may be found in the heart of evergreen forests where the foot of civilized man has never yet trod their carpets of moss and fern, whilst others again frequent only the scattered deciduous forests of the drier portions of the lower hills.

Falco peregrinus peregrinator Sundevall.

(Plate V. figs. 3, 4.)

The Shahin.

Hume divided this Falcon into two races, *F. atriceps* and *F. peregrinator*, but further material has shown that these cannot be discriminated—indeed, in more than one instance a typical male of the one has been found breeding with an equally typical female of the other so-called species.



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H. Grönvold.

Figs. 1, 2. FALCO SEVERUS.
Figs. 3, 4. FALCO PEREGRINUS PEREGRINATOR.
Figs. 5, 6. FALCO SUBBUTEO CENTRALASIÆ.

Up to the time Oates re-edited the first edition of Hume's 'Nests and Eggs of Indian Birds' in 1890, the only records of the nest of the Shahin having been taken were those of Blewitt in the Raipur District, Cock in Dharmsala, and two nests sent to Hume from Kulu.

At the same time it was pretty generally known that Peregrines of some kind bred practically everywhere in India where there were suitable cliffs and precipices situated in sufficiently wild country.

Layard reported it as breeding in Ceylon, Jerdon and others stated that it bred in the Nilgiri Hills and other hill-tracts of southern India, and many observers declared that it bred in some numbers on the North-west Frontier.

As a matter of fact, it breeds practically everywhere throughout India, but is rare in the south and Ceylon, absent, except as a straggler in winter, in the flat plains of alluvial Bengal, and quite common on the North-west Frontier, the Himalayas, and their subsidiary hills, whence it extends into the Shan States, Kachin Hills, and even to the Pegu Yomas.

Like the true Peregrine, it is of course essentially a cliff-builder, and the only exception I have known to this rule, if one can call it such, was the nest found by Mr. Cyril Hopwood on the 15th of April, 1911, in a cleft in the sandstone banks of a river some sixty miles above Monywa. On this occasion there were three young birds in the nest, but the following year, on the 7th of March, he succeeded in getting two beautiful, partly set eggs (Bombay Nat. Hist. Journ. xxi. p. 1090).

Mr. Hopwood records that there was no nest at all in this case, the eggs being deposited on the bare earth.

The taking of my first Shahin's nest is deeply impressed upon my memory, for it was the long-deferred successful result of much hard work and many vain attempts before it happened. It was in March 1898 that some of the engineers employed on the Assam–Bengal Railway got up a picnic on the crest of Mahadeo, the tallest peak of the Barail Range in North Cachar, in the valley below which ran the railway they were engaged in constructing. We started early in the morning, and after climbing some 3000 feet of the mountain the sides began to get more and more rugged, great outcrops of rock covering them, but divided and broken up by strips of evergreen forest. Endless ferns and bracken grew everywhere, and mighty masses of orchids hung from every tree, some of these already showing brilliant patches of colouring where the blooms peeped between the branches. It was not, however, until we were well over 4000 feet that the climbing was really steep, and from about 4500 to 5000 feet there were many small, almost unclimbable cliffs, round which we had to work our way until, arrived on the summit itself, we stood on a tiny flat patch of ground looking over a steep cliff on one side, whilst on the other was the less precipitous slope up which we had come.

The trees here were still mostly evergreen, but were stunted and twisted, their boughs distorted in one direction by the prevailing winds, and loaded with vivid green moss which fell in long streamers from their surface as well as covering the main stems. Below there was but little undergrowth of any height, but everywhere, even in the crannies of the rocks, grew endless species of caladiums, gloxinias, begonias, and similar plants, whilst the scent of wild jasmine filled the air.

We were lying on the ground after lunch, most of us drowsy in the hot sun, and resting preparatory to our descent homewards, when my attention was attracted to two Falcons dashing backwards and forwards, now high above us, now quite close, and at intervals disappearing just below us towards the cliff above which we were lying. Seeing that they particularly haunted one special spot in the cliff, I crept up to the edge of it and watched the birds as they flew, screaming, to and from a small ledge which ran not twenty feet below, and a little to one side of where I lay. Presently one of the birds disappeared under the ledge, and did not again appear until I dropped some small stones down, when, with a shrill scream, she darted out and joined her mate above. This certainly looked as if there was a nest under the ledge, but, though so near, it was yet far away, for without ropes it was quite impossible to get at. From where I lay I could see through the shimmer of the afternoon sun into a depth below, which would have appalled even the surest-footed Naga from attempting to descend to the nest, and gave me no desire to risk my own neck. The whole cliff was more or less covered with small bushes and ferns, which prevented a clear view of the slopes, so that it was impossible to locate the nest exactly. However, a talk with my Naga friends convinced me that the nest was where I suspected, and that it was worth while taking *some* risks to obtain, for they assured me that the birds had bred on that ledge for generations, and from a particular spot below the nesting-ledge one could see a broad expanse of the rock covered with their droppings. We accordingly worked down the hill and to the side of the cliff, and there, sure enough, I found that what the men had told me was quite true, though even then I could not see my way to getting at the nest. It was only about forty feet from where we were standing, but, though not sheer, the surface of the cliff was so rotten and the bushes so frail that an attempt to climb up seemed too dangerous, for the spot on which the nest lay overhung a precipice many hundreds of feet deep, and a slip would have been certain death. A Naga, Namreng, offered to make the attempt, but, after climbing a few yards, a stone gave way beneath his feet and rumbled away into eternity below. This was enough for me, and I insisted on his return.

Next day, however, we made another attempt with ropes formed from green canes. First of all, we lowered a strong cane over the edge of the cliff to where we stood, and this we connected with another cane, the loose end of which we retained in our own hands. The Naga then tied several loops of cane round his waist and under his arms, passing underneath them the other supporting cane, the ends of which lay, one in the hands of the men above, the other with us. By this means the men above managed to work along the top, whilst we gradually paid out from below, and foot by foot, yard by yard, the distance between the Naga and the nest decreased until with a shout he announced to us that he was at it, adding that there were four eggs visible.

All the time the Naga was making his rather perilous journey the two birds dashed backwards and forwards, screaming their rage, but, though every now and then both of them made swoops towards the man, they never came within ten feet of his head. It was noticeable that the bigger bird, the female, was much the more noisy in her cursing, more bold in her swoops, and more persistent, though, as the Naga began to actually remove the eggs, the birds both got more excited than ever and we expected them every minute to strike his head.

They did not do so, however, and, in a few minutes, four beautiful eggs were safely landed by the Naga and given over to me. They were, of course, just like the Common Peregrine's, but a good deal smaller.

The birds remained screaming about the cliff as we went on our way home, and soon settled down to business again, and later on laid three more eggs, with which we did not interfere.

In the district of North Cachar the Shahin was not common, but in the adjoining Khasia Hills several pairs bred every year in the very precipitous cliffs round about the village of Lailancote. These cliffs are the highest and most rugged I have seen in any of the hill-ranges south of the Brahmapootra, and in some places the cliffs face each other so closely that they are singularly dark and forbidding in their aspect, but little sun penetrating into their lower depths.

Many rare birds breed in these places, and from one point in them I have had within range of view at the same moment nests of both the Shahin, the Indian Hobby (*F. severus*), and a colony of that most rare of Swifts, Blyth's Swift (*Micropus acuticaudus*).

I personally knew of two eyries close to Lailancote, from which my men took several clutches of eggs, the birds always being allowed to rear their second laying as far as we were concerned. For ten years, from 1901 to 1911, both pairs of birds bred regularly; I then left India, but my men tell me that the birds are still there, and haunt and breed in the same places.

We found that each pair of Shahins had at least two nesting-places and laid sometimes in one nest and sometimes in the other, but we could not find out any hard-and-fast rule which governed their actions. Sometimes they would breed two years running in one nest, whilst at other times they would use a nest for the one year only. In the same way they would sometimes lay a second clutch in the same nest as that from which the first had been robbed, and sometimes they would go straight to their second eyrie and commence to repair it. One pair of birds had their two nests within about two hundred yards of one another, and on ledges in the same cliff, but the other pair had their two eyries at least half a mile apart, and it was long before my men marked down the second for me.

There were at least two more pairs of Shahins breeding in the Lailancote Cliffs three or four miles away from these birds, but our few attempts, never very prolonged, were unsuccessful in locating their eyries.

All the Shahins' nests I have seen, altogether eight in number, have been built on ledges of rock on very precipitous rugged cliffs, and, with one exception, in places inaccessible except with the aid of ropes. As a rule, they were not far from the top of the cliff, but almost invariably protected from above by an overhanging ledge, boulder, or clump of bushes. One could therefore seldom find a nest except by watching the birds from a distance, and then, where it was possible, from an opposite cliff or hill. The exception to which I have referred was the second eyrie of one of the two pairs of birds mentioned above. This particular nest was built on the edge of a comparatively wide ledge of rock which sloped gradually down from about four feet from the top to about ten feet or rather more below it. The cliff here was rather broken and crumbly, but there were numerous sturdy bushes growing both on the ledge itself and on the sides of the cliff, with the aid of which it was easy to clamber down to the nest.

The nests themselves are, as a rule, very large, and though each year the birds seem to discard a certain amount of the old material, they add a more than corresponding amount of new, so that a very old nest becomes a bulky affair. One of the Lailancote nests must have been nearly three feet across one way by about two the other, and measured a good two feet deep on the side next the cliff. In front there was a ridge of stone which, whilst it kept the nest from sliding off the ledge, reduced its thickness to about a foot. Other nests, though less bulky than this one, were all big substantial affairs, containing a large amount of material. The smallest, which was built in a V-shaped crack in a rock, was over a foot across the top in diameter, filling up the crevice to a depth of about eighteen inches in the centre. The birds use a good many pliant twigs, sometimes with the leaves still adhering, as a sort of lining, but the bulk of the nest itself is composed almost entirely of small sticks from one to two feet in length, and about the thickness of a stout lead pencil. A few shorter thicker sticks are also worked into the base of the nest, and often old bits of rubbish, such as skins, wool, large feathers and roots are also made use of.

Mr. P. L. Dodsworth, who took some nests of this Falcon near Simla, thus describes one of them :—"The nest was a loose, irregular platform of sticks, with a central depression ; a few pieces of string, rope, rags, and other odds and ends were mixed up in the structure."

On another occasion, however, where he found the bird breeding *inside* a cleft in the rocky side of a precipice, the two eggs were laid on the ground without any pretence at a nest of any kind, just as were those taken by Mr. Hopwood.

The number of eggs most often laid is three, but very often two eggs only are incubated ; on the other hand, sometimes four are laid.

A description of the eggs is quite unnecessary, as they follow all the phases of marking found in those of the Peregrine, and there is no way by which they could be separated except by their size, for they average a good deal smaller than the eggs of that bird.

In the series of eggs in my own collection almost every type of coloration found in Peregrines' eggs is represented, except the practically unicoloured egg with a brick-red ground and scarcely any markings. One of the eggs in the collection of the late Mr. P. L. Dodsworth, and now in the Tring Museum, is a very lovely specimen of this type. This pair of eggs is described by Mr. Dodsworth as follows:—"The coloration of the two eggs is entirely different. One—a magnificent specimen—is a rich uniform deep brick-red, the other has a ground-colour of a brownish yellow, and is heavily blotched with yellowish brown."

A rather quaint clutch of three taken at Lailancote has a pale, rather bright pink ground, and numerous fine spots and freckles of reddish brown, as well as long wide smears ot light reddish-clay colour running practically the full length of the egg. The texture is similar to that found in the egg of *F. peregrinus*, and the shape, as in the eggs of that bird, is normally a broad, very regular oval, but little compressed at the smaller end. Sometimes eggs tend in shape to a long narrow oval, but I have seen none which could be called really abnormal.

In size the series of eggs which have passed through my hands cannot, I think, be accepted as normal, for they average much bigger than those found by other field-naturalists and collectors. Mine are nearly all the produce of three pairs, and of these two at least seem to have laid eggs above the normal in size. Forty eggs average no less than 52·2 mm. × 41·2 mm., the extremes in length being 56·0 mm. and 49·0 mm., and in breadth 43·8 mm. and 39·2 mm.

Of eggs other than those taken by myself and including those mentioned in Hume's 'Nests and Eggs' (vol. iii. p. 184 *et seq.*), the average is decidedly smaller.

Hume gives details of six eggs, Hopwood two, Dodsworth three, and I have seen four others taken near Simla. These fifteen eggs vary in length between 1·88″ (47·76 mm.) and

2·10″ (53·3 mm.), and in breadth between 1·43″ (36·3 mm.) and 1·68″ (42·6 mm.), and average almost exactly 2″ (50·8 mm.) × 1·56″ (39·6 mm.).

The breeding-season over the greater part of their habitat commences in March, and eggs may be found throughout April. In the north-western Himalayas most birds appear to lay in the last five days of March, but in north-eastern India the majority of eggs are laid about a month later, and second layings have been taken at the end of May and once in June.

In the south, where there is no real difference between summer and winter, they lay in January and February.

Certain haunts seem to be specially suited to this bird's requirements, and if one pair is killed or driven away another pair soon takes its place. Mr. Dodsworth in Simla and others elsewhere have found this to be the case, and in both the Khasia Hills and North Cachar when I have had to shoot these birds to be sure of their identity, within a very brief period another pair has taken their place, although they never, so far as is known at present, occupy quite the same site for their nesting-operations.

The Shahin does not seem very intolerant of the presence of others of its own species, and two pairs may be found frequenting the same area of ground without any fighting. As a rule, however, each pair has its own individual breeding and hunting grounds, though it may, and generally has to, share the latter with Fishing-Eagles, Kites, and other birds of prey.

The food of the Shahin consists in great part of Pigeons and Doves, wherever these birds are plentiful, but during the winter when Duck, Teal, and other Water-birds swarm on all the bigger waters in India, the Falcons devote themselves to the hawking of these birds. A Duck or Teal on the wing, when frightened, is no mean performer, but its flight seems slow and clumsy when compared with the stoop of this magnificent bird. I remember, on one occasion, when duck-shooting in Assam, the birds, from continued shooting, had by the end of the day become very wild, and were flying over our screens very fast and high. In this manner a flight of Tufted Duck had just passed over, out of gun-shot, when suddenly I heard a loud *swish*, *swish*, and the next second a Falcon fell like a bolt on one of these birds, and, striking fair, sent it headlong into the lake behind me. At the time the Ducks passed over me there was no sign of any Falcon visible, and it must have been at an immense height when it stooped. Other speedy fliers which these birds often strike are Parakeets, and the Shahins, when their breeding-cliffs are near the flighting-places of these birds, take a heavy toll of them each morning and evening as they pass to and from their feeding-grounds, in flocks which sometimes number many thousands.

When killing small birds or bats they generally catch their stricken game before it falls to the ground, but Duck or Water-birds of greater weight are recovered from land or from the water into which they may chance to fall, and are thence dragged to some convenient spot where they make a meal. I have seen the Shahin stoop at and kill both Jungle-Fowl and Kalij Pheasants, and once saw one making a meal of a Javanese Owl (*Ketupa javanensis*), but whether it had killed it or not there was no proof.

It certainly does not *always* kill its own food, for I have seen one feeding on a Duck killed the previous day, and missed by the beaters, but undoubtedly under ordinary circumstances it will not feed on anything it has not itself taken.

Falco severus Horsfield. (Plate V. figs. 1, 2.)
The Indian Hobby.

This handsome little Falcon is found throughout the Continent of India, except the north-western and central-western portions, and extends throughout Burma and Siam into Malaya. It, however, seems to retire in the breeding-season to the nearest mountains or hills, never ascending these to any very great height, but being most often found at elevations between 2000 and 4000 feet.

It builds its nest, or makes use of some other bird's nest, in trees, but always selects one growing on the side of a cliff, sometimes in quite impossible situations, at other times it makes use of trees which can be got to and climbed with comparative ease.

The first nest ever recorded of this Falcon was one found, but, alas! not taken, by me one evening in April 1896, in the North Cachar Hills. I was at the time out Gaur-shooting at a place called Karungma, an old Khasia fort that had been built on the crest of a hill some 3500 feet high, which dominated the whole surrounding country. On one side a large pond had been formed by a bank thrown across a ravine, thus making a retaining-wall for a piece of water some 200 yards long by nearly as wide, and surrounded by a strip of forest. In the early morning I had shot a male Hobby which had been busily engaged in hawking termites, and which proved, on dissection, to be breeding.

That same evening I was returning from shooting along a village-path which skirted the edge of the cliff upon which the fort was situated, when a Hobby darted from a tree beside the track, and disappeared over the edge of the cliff. Following her up to a point where the ledge actually hung over and beyond the face of the cliff below, I could just see that there was a nest in a small sapling forty or fifty feet below me upon which what seemed to be the Hobby was sitting. A Kuki boy and I then went down the cliff to the tree, but the cliff was very rotten and broken, and the tree was too slender and brittle to climb, so though we could just see the Hobby's tail as she sat on the nest not twenty feet away, we could not get the eggs.

Above the sapling, however, was a larger tree which seemed to be safely rooted into the cliff, though it jutted out in a rather perilous way, almost at right angles. The boy climbed up this, and reported that he could look into the nest, which was only a few feet below him, and could see the bird, which still refused to move. I then climbed up myself, and at last induced the sitting bird to move by pelting her with pieces of bark and twigs. As soon as she had gone I saw the eggs, four beauties, which showed up a rich red against the brown twigs of the nest. There were no canes or really stout creepers to be found close by, but we made a rough rope of grass and tried to pull the sapling up towards us—without any effect, however, as the rope always broke before we could make the sapling bend. Eventually the rapidly gathering darkness drove us away and, as I had to leave at daybreak the following morning, the eggs were never taken.

On another occasion, in 1894, I came on a pair of Hobbies evidently breeding quite close to this same place, but failed to find their nest, and I never succeeded in taking its eggs in North Cachar.

In the years 1906 and onwards I found many pairs of these birds breeding on the rugged hills which border the Sylhet district, especially in those which ran from Cherrapoongi to Lailancote, the cliffs in the Khasia Hills where I found the Shahin regularly breeding. In a distance of about ten miles or less we eventually found four nesting-places, but out of these one pair of birds deserted after we had taken the first clutch of their eggs, one other pair came to grief in some unknown way, though the other two supplied us with a clutch of eggs regularly every year.

All four of these nests were built on trees in very much the same kind of position as that seen at Kurungma, but in only one of the four were they at all difficult to get at. This nest, evidently an old one of the Jungle-Crow, had been built at the top of a very large tree on the usual cliff-side, but this was so sheer both above and below the wide ledge on which it stood that ropes were imperative to enable one to be lowered down to it ; once on the ledge it was, of course, simple enough to climb the tree and take the eggs. This nest was never used again by the birds, nor could we ever find out where they had removed to.

A second nest used by a pair of Hobbies, again that of a Jungle-Crow, was placed on a small tree at a height of about twenty-five feet from the ground on the steeply shelving side of a hill, hardly steep enough to be called a precipice, yet steep enough to make walking difficult, and the use of hands as well as feet frequently advisable. A short way below the tree the side of the hill dropped down almost perpendicularly for a couple of hundred feet, but there appeared to be no trees growing on it which would have been suitable as a nesting-site.

This nest furnished me yearly with a clutch of either three or four eggs, the birds always returning to it and laying a second clutch, which was not allowed to be disturbed.

The third nest was either one which had been made by the birds themselves, or else so much repaired and altered as to make it look as if it was their own original work. It was situated on a smallish tree growing out of a cleft in a rock, and was quite easily approached from below. This pair of birds had two nests within about 200 yards of one another, of which they made use in alternate seasons, but, when a clutch of eggs was stolen from one, they would invariably lay the second in the other nest, and return to the original one the succeeding year. The second nest was much like that just found, either built by the birds themselves, or much repaired and altered by them. The nest of the fourth pair was built on a very small thick tree, hardly more than a high bush in size, within sight of the eyrie of a Shahin, and not twenty yards from a small colony of Blyth's Swift. In fact, the bush grew out of a crevice which ran in a slanting position, much interrupted and broken, across the face of the cliff for fully a hundred feet, in the upper end of which same crevice the Swifts were breeding.

This pair of birds came to grief in some way, for when we visited it to take the eggs, the nest was pulled to pieces, the eggs smashed, and the remains of one of the parents (just a few wing- and tail-feathers) were lying on a rock below. In this case the birds had made use of a Dove's nest as a basis for their own, but had built quite a substantial nest of twigs, leaves, and long streamers of moss on the top of it, the moss having evidently been torn from a dead tree, within a few feet of their own bush, which was covered with a similar kind.

I have also seen a nest of this bird built on a narrow ledge of rock on a cliff-side, and Mr. Percy Macdonald found it breeding in a still more unusual place, taking a solitary young bird from a hole in the bank of the Mugitha River in the Pakkaku District of Upper Burma. In this case the young bird was squatting on the bare ground, with no pretence of a nest, in a hole in the bank about thirty feet above the water (Bombay N. H. Journal, xvi. p. 518).

Bourdillon found what he believed to be a nest of this species in Travancore, in a position very similar to those found by me in Assam, built on a tree overhanging a precipice.

In the Tehri Garhwal Mr. C. H. Donald found it to be a regular breeder, but he gives no description of nest, eggs, or nesting-site (Bombay N. H. Journal, xviii. p. 936).

The Indian Hobbies breed much about the same time of year as the Shahin—that is to say, during April; a few birds begin, however, in the end of March, and second clutches may be taken in May or even in June. They generally lay three eggs, though a fair number of fours may be taken. Fewer than three incubated eggs I have not seen, though it must be remembered that Mr. Macdonald found a single young one in the nest-hole in the River Mugitha.

The eggs are, as might be expected, very similar to those of the Common Hobby, but are on the whole much more richly coloured than those of that bird, more nearly approaching those of the Merlin in this respect. I have one clutch in my collection, of which one egg is figured (Plate V. fig. 1), which is extraordinarily handsome, and which must be of a very rare type. The ground-colour is the usual pinkish brick colour, very pale, and is well covered with minute specks, freckles, and spots of light and dark red, in addition to which there are a few very bold, large blotches of deep reddish vandyke-brown. The nearest approach in coloration I have seen to these eggs has been in some extra handsome Kestrel's eggs. On the other hand, I have one or two clutches of the Indian Hobby which are of the same dull pale brickish-brown colour so very often seen in the eggs of the Common Hobby.

In shape and texture there is nothing by which they may be distinguished from the eggs of the Common Hobby. Normally they are very regular ovals, one end but very slightly compressed; some eggs are rather longer than others, and I have one egg rather pegtop-like in shape, but the other three eggs in the same clutch are all of the usual type.

The average measurements of 34 eggs is 40·1 × 31·6 mm. The longest and shortest eggs measure respectively 41·2 mm. and 37·5 mm., and the broadest and most narrow 33·6 mm. and 29·3 mm. They therefore run decidedly smaller, on the average, than the eggs of *Falco subbuteo*.

The Indian Hobby is very crepuscular in its habits, and one seldom sees it hawking before the afternoons draw to their close, or after the early morning hours before the sun has got too hot and glowing. Cloudy, cool days will, however, tempt it to stay out later in the mornings and to come out earlier in the afternoon, whilst a flight of termites in the vicinity of its roosting-place will bring it out at any hour. The winged termites it catches in the same manner as do all the other Raptores from the Imperial Eagle to the tiny Falconet. Once on the wing, these insects seem to have very little control over their movements, and I doubt if they can swerve to right or left, accelerate, or reduce their speed at will—in consequence, they are very easy to catch. The Hobbies swoop towards their prey, and then check themselves in flight so that they seem to stand on end, and one sees a foot which has been lying back under the tail thrust down and forward, and the ant is grasped in it and conveyed to the mouth and eaten as the birds fly. Sometimes the action is so quick that one merely sees a rapid movement of the foot as the bird passes an ant at full speed, but more often the action is comparatively leisurely and easy to follow.

The Hobby is, however, by no means solely insectivorous, but feeds also on birds, often of some size, and is peculiarly fond of Bats. I have seen sometimes below the nests of these birds such numerous remains of bats that they must in these instances have formed the staple food of both parents and young.

It is very interesting to watch this little Hawk catching bats. I have seen it stoop to them in regular Falcon-fashion, and both catch and miss them in this way, but I think they more often pursue the bats as they dodge about in their peculiar flip-flap flight until they can grab them. On one occasion I saw a pair hawking bats; both birds sat on a tree until a bat crossed in front, when they at once started in pursuit, but apparently returned to their perches if not successful in the first few seconds. Looking up into the clear moonlit sky, it was easy to see the start of the bird and the first one or two rushes, but after this bushes or trees generally intervened, and I was unable to see what success the birds had.

I have found, in or under their nests, the remains of Barbets (*Cyanops franklini* and *C. asiatica*), Bulbuls, Bustard, Quail (*Turnix blanfordi*), lizards, mice, rats, a mole, and all kinds of Coleoptera, often of very great size.

Unlike the Shahin, the Indian Hobby will not allow any other bird of his own species to hunt anywhere near his particular domain, and though much the more common bird of the two in the part of India I served in, I never saw two pairs of this species working the same ground.

Falco subbuteo centralasiæ (Buturlin).

(Plate V. figs. 5, 6.)

The Central-Asian Hobby.

This race of the Hobby breeds not uncommonly in the Himalayas above 5000 feet, but unfortunately, owing to their not having differentiated between this form and the Common Hobby, writers have not troubled to record anything about the nesting-habits. Col. A. E. Ward noted that it bred regularly in the higher hills of Kashmir; Whitehead found it breeding on the Kurram and Khagan Valleys; Buchanan, Rattray, and Wilson found it breeding above the Murree Hills in the Chungla and Danga Galis, and I have had it sent me from Tibet together with the eggs.

The only writer who has written at all fully about these birds' breeding is Mr. A. E. Jones, whose interesting notes are worth quoting :—

"As the breeding of this Hobby within Indian limits is of somewhat rare occurrence, I venture to give an account of a nest which I found on August the 16th.

"This nest was in a Deodar Forest, at an elevation of 6000 feet, and within two miles of Simla.

"The situation was on three horizontal branches, and forty feet up in the Deodar (*Cedrus deodara*). It was oblong in shape, measuring approximately 12″ × 10″ × 2½″ in depth, with a central depression of 2″. The nest was composed entirely of fine twigs which did not exceed the diameter of an ordinary pencil.

"There were three young in the nest, about 16–18 days old. I was attracted by their cries, which closely resemble those of the Kestrel (*T. alaudarius*). At the same moment I saw one of the old birds leave the nest.

"Sitting down I watched their proceedings during a vigil of two hours, and had repeatedly the pleasure of seeing the parents bring food which must have consisted of small insects (chiefly beetles, judging from a pellet disgorged by a young one I took in the hopes of rearing it), though they occasionally indulged in a flesh diet. The old birds brought food at intervals of from ten to fifteen minutes, their approach being heralded by the hungry cries of the brood. As the parent bird alighted on the nest the young greedily rushed to rescue the food which was always carried in the feet. The duration of these visits lasted but a few seconds. The food being disposed of, a hasty glance round, and the parent stepped quietly off, mounting to feed in mid-air 500 feet above the level of the nest. When food was secured, the bird dropped with marvellous velocity to the nest. After some time I ordered my climber to go up and bring one of the young ones down, and also to lift the remaining two to ascertain if by any chance there was an addled egg. Immediately he extended his hand over the side of the nest, the young Hobbies threw themselves upon their backs, presenting their claws and open bills, at the same time making as much noise as they were able.

"Probably the nursery of these Hobbies had originally been built by Crows (*Corvus macrorhynchus*), and had been altered to suit the requirements of the former."

The eggs sent me from Tibet were taken for me near Yatung by Mr. D. Macdonald at an elevation of over 12,000 feet, and were deposited in an old Magpie's nest in a small stunted tree. Originally there were no fewer than five, but two of these were hopelessly smashed on their way home.

I have two other clutches of eggs of this Hobby in my collection taken respectively by Cols. R. N. Rattray and Kenneth Buchanan, the former near Gulmurg in Kashmir, the latter at Changla Gali in the Murree Hills, but I have no notes with them beyond the fact that they were both taken from nests in high trees.

These nine eggs, together with three others taken in Eastern Turkestan vary in length from 40·1 mm. to 41·6 mm., and in breadth from 31·2 mm. to 33·5 mm., the average of the twelve being 41·2 × 32·4 mm.

They are typical Hobbies' eggs in every respect, shape, texture, and coloration, and could be matched exactly in any ordinary series of eggs of *F. subbuteo subbuteo*, but one egg (Plate V. fig. 5) is a rather exceptionally handsome one, with a very bright pale ground-colour and very pink-red markings.

XIII.—*Note on the Acclimatisation of the Australian Black Swan* (Chenopsis atrata). By R. T. Gunther, M.A., F.Z.S.

(Text-figure 2.)

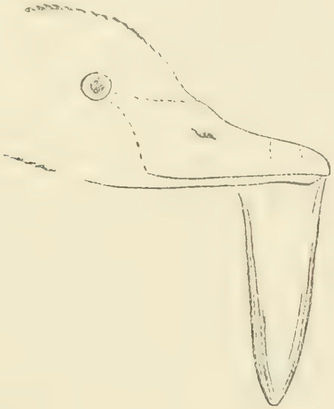
While a bitterly cold north-easter was blowing across the river, our common Thames swans were all keeping positions in mid-stream with their heads tucked under their wings to shelter their long necks from the nipping and eager air.

The Australian swan, on the other hand, was swimming about with neck erect, though evidently greatly disliking the wind.

The unusually cold winter has severely tested the powers of endurance of our guest from the latitudes of the Swan River, where the climate, as indicated by an average winter temperature of about 55°, must resemble that of Gibraltar. Since 1904 we have been keeping a pair of these handsome birds, the gift of the Vintners' Company, upon the river Cherwell at Magdalen College. Since the outbreak of war and the departure of the undergraduates, the male bird has preferred the wider reaches of the Isis, and especially that more open meadow-land known to rowing men as the "Green Bank," to the narrower water-lanes of the Cherwell overhung with trees. It may be that in wet weather the constant drip of water from the overarching branches was an annoyance; perhaps the attraction was,—to be seen by, and yet remain aloof from, the numerous company of Thames swans (sixteen on occasion in this reach this winter).

On Sunday January 28 the main river became blocked with ice-floes and ground-ice, from the "Gut" to Magdalen Barge. By next morning the barrier extended up to my house on the river at Folly Bridge, and one Black Swan was cut off from his feeding-place at the Magdalen water-walks by rough pack-ice. He soon found consolation in making cupboard love to the cook at the water-gate, and consumed scraps of bread in quantities that were positively unpatriotic. During Monday night the thermometer fell to twelve degrees below freezing, and on the following morning our attention was attracted by the crowd that gathers on the bridge for an unusual sight, such as when a fish is caught, or a boy tumbles into the river, or a barge sticks under the bridge and bargee language won't move it. The sight in this case was the Black Swan swimming about in perplexity, unable to open his red bill, which was firmly frozen up with a thick pendant icicle four or five inches in length, hanging from the horny mandible. With every dip into the freezing water the impediment grew longer. Fortunately, however, the sun soon came out, and the hungry bird, attracted by his friend at the gate, hit on the expedient of knocking his bill against the wall and recovered his power of feeding.

Text-figure 2.



Head of the Black Swan with an icicle attached to the lower mandible, about ½ nat. size.

That swans are among the older inhabitants of this cold country is indicated by the remains both of Whooper and of Bewick's Swans in the superficial deposits of Thames gravel. While fully granting that the bones may have been those of migrant birds, I would suggest that even those contemporaries of the Mammoth are likely to have known how to keep their heads and necks warm in a freezing wind. One might even go further and explain the origin of the gleaming whiteness of the swan as an Arctic characteristic, partly to secure invisibility in snow and partly, as Lord Walsingham* would have us believe, to check loss of heat by radiation. Black Swans come from warmer climes, and now, owing to inability, or to ignorance of how to effect a wrapping up, would perish from an exposure that would not hurt our white birds.

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* Trans. York. Nat. Union, ser. D. Articulata, 1885, p. 122.

What is certain is that the temperature of the tips of the bills of many birds, both in hard weather and when flying at considerable altitudes, must not infrequently fall considerably below 32° Fahrenheit.

XIV.—*Obituary.*

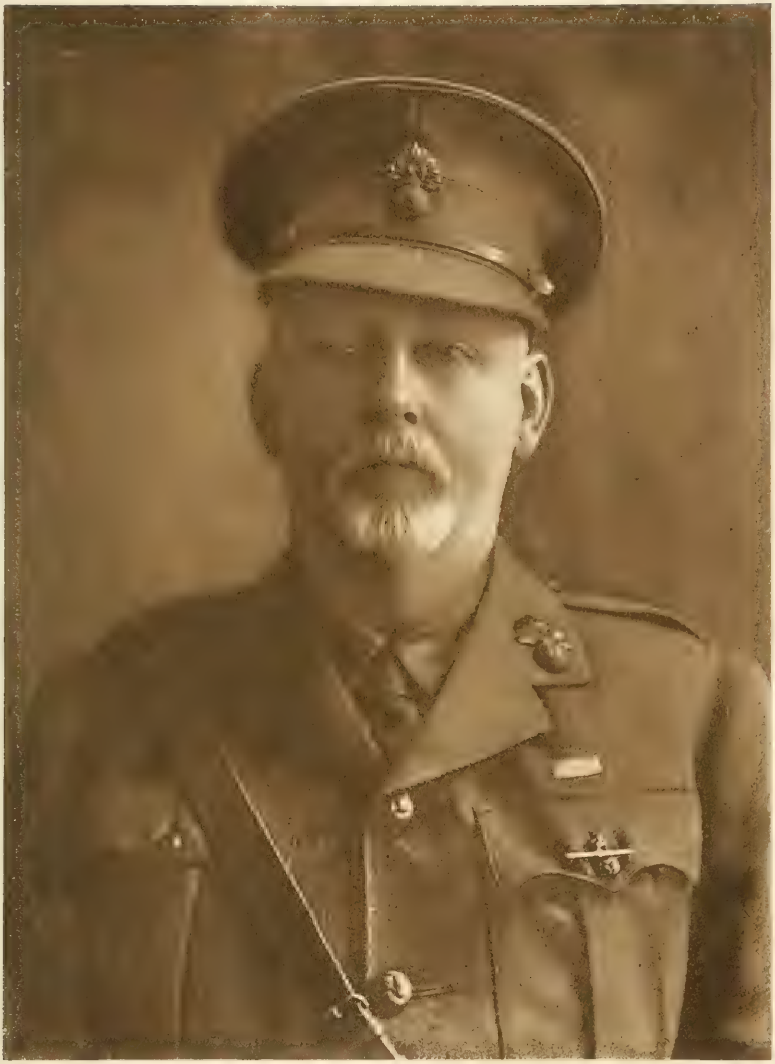
(Plate VI.)

We regret that we have to add three more names of Members of the Union who have given up their lives for their country:—Capt. F. C. Selous, Capt. Lord Lucas, and Commdr. The Hon. R. O. B. Bridgeman. With those already recorded, namely, Lieut. K. F. Meiklejohn, Capt. Lord Brabourne, Lieut. C. M. Dyer, Lieut. R. B. Woosnam, Capt. the Hon. Gerald Legge, Major C. H. T. Whitehead, Capt. E. F. Penn, Col. C. Stonham, Col. H. H. Harington, Lt.-Col. B. R. Horsbrugh, Capt. J. M. Charlton, and Capt. J. C. Crowley, our roll of honour now contains the names of fifteen Members of the Union.

Frederick Courteney Selous. (Plate VI.)

The tragic news of the death in action of Capt. Selous, D.S.O., in East Africa on January 4 last was universally received in all English-speaking countries with a deep sense of loss and with a feeling of intense admiration for one who, at the age of sixty-four, insisted, and rightly so, on his fitness to take up arms for his country. Joining the 25th Service Battalion of the Royal Fusileers (known as the Frontiersmen), he was gazetted 2nd Lieutenant in February 1915 and became Captain the following August. He proceeded to East Africa and served under General Smuts. In September last year he was mentioned in dispatches, and was awarded the Distinguished Service Order for his invaluable services.

Selous was born in London on December 31, 1851, of



Frederick Courtenay Selous.

mixed French and English parentage. He was educated at Rugby and subsequently on the Continent. In 1870 he embarked for the Cape with £400 in his pocket to earn his living as a professional elephant hunter, and from that date until 1890 he wandered about the then unknown territories between the Transvaal and the Zambesi, shooting elephants, and also procuring many of the splendid examples of the big-game animals of South Africa for the South African Museum at Cape Town and for the Natural History Museum in London. In 1890 he entered the service of the Chartered Company and led the pioneers on their expedition from Tuli to Fort Salisbury, which inaugurated the settlement of what is now Southern Rhodesia.

Shortly after this he settled in England, at Worplesdon in Surrey, where he built a Museum for his numerous trophies; but his activities as a hunter had by no means ended, as he subsequently made many hunting trips to Asia Minor, North America, and to British East Africa and the Upper Nile.

His books on hunting and travel are well known to every one and are classics. 'A Hunter's Wanderings in Africa,' in 1881, was succeeded by 'Travel and Adventure in South East Africa,' 1893, and 'Sunshine and Storm in Rhodesia,' 1896. Accounts of his later experiences will be found in 'Sport and Travel East and West' and 'African Nature Notes and Reminiscences.'

Selous was not only a hunter, he was a keen observer, and his indefatigable patience and retentive memory combined to make him a field-naturalist of exceptional excellence. He was as much interested in birds and their eggs as in big game, and had a fine collection of eggs at Worplesdon, nearly all obtained by himself on his numerous expeditions. He became a Member of the Union in 1899, and was a regular attendant at the meetings of the Club and frequently took part in the discussions, and occasionally himself exhibited some of his nests and eggs.

To his friends Selous will always remain an inspiring memory. His simplicity and candour, his entire absence of self-seeking and transparent honesty, all appealed to even a comparative stranger. Physically he was a magnificent example of a "hard" man; he was beautifully proportioned, with a chest of extraordinary depth and breadth, and he is described as the best white runner that Matabele had ever seen. Even in the recent campaign he enjoyed perfect health, and was the only officer of his party not laid aside by illness. Thoroughly inured to hardship, he withstood the rigours of the campaign better than men less than half his age.

Selous married in the nineties Marie Catherine Gladys, a daughter of Canon Maddy of Down Hatherley, Gloucestershire, who survives him with two sons—the elder now serving in the Royal Flying Corps, the younger about to enter Sandhurst.

At a meeting of the British Ornithologists' Club on January 17 a proposal was made and unanimously carried that the B. O. U. should co-operate with other Societies to form a committee to promote a national memorial to Capt. Selous. Further details of this matter will be found on p. 280.

AUBERON THOMAS HERBERT, Baron LUCAS AND DINGWALL.

Captain The Lord Lucas was reported as missing after making a flight over the German lines on November 4, 1916, and has since been officially returned as killed.

The only surviving son of the Hon. Auberon Herbert, of the Old House, Ringwood, and of Lady Florence Annabel, daughter of the 6th Earl Cowper, Auberon Thomas Herbert was born in 1876, and was educated at Bedford Grammar School and Balliol College, Oxford. In 1905 he succeeded his maternal uncle, the 7th Earl Cowper, as the 8th Baron Lucas and the 5th Baron Dingwall, the earldom becoming extinct with the death of his uncle. He rowed for two years in the Oxford boat, and held several Under-Secretaryships in the late Liberal government, culminating in the Presidentship of the Board of Agriculture, to which he was appointed in 1914 and which he resigned on the formation of the Coalition government in May 1915.

During the Boer War he served as a special correspondent of 'The Times,' and was wounded in the leg, which had to be amputated below the knee. Notwithstanding this disability he retained his great activity, both in walking and riding, and no one would have ever guessed that he had lost one of his limbs if they had seen him out shooting.

Although precluded by his disability and his age, which was over forty, Lord Lucas on leaving the Government entered the Royal Flying Corps, and he soon became a most expert flyer and pilot and made his mark in this as in most other matters.

Lord Lucas was devoted to birds and to all living things. His recreation is stated in 'Who's Who' to be ornithology. He was elected a Member of the Union in 1902.

Some years ago Lord Lucas, Viscount Grey, the Hon. E. S. Montagu, and Mr. B. Russell, all keenly interested in bird-life, acquired an estate in the "broads" district of Norfolk, in order to provide protection for the rarer kinds of birds. This property, known as the Whiteslea Estate, is situated in the parishes of Hickling and Catfield, and comprises some 3000 acres.

Special precautions are taken to protect any rare birds breeding on the property, and a log-book is kept by the head-keeper in which he records all his observations. The active management of the estate was in the hands of Lord Lucas, and he spent a good deal of time at Whiteslea Lodge with Viscount Grey and his other friends. We understand that under Lord Lucas's will his interest in this protected area is bequeathed to the Hon. Ino Grenfell.

Lord Lucas was unmarried, and is succeeded in his titles by his sister the Hon. Nan Ino Herbert.

RICHARD ORLANDO BEACONSFIELD BBIDGEMAN.

Commander The Hon. Richard O. B. Bridgeman, R.N., D.S.O., who was reported killed while flying in East Africa early in January of this year, is the first naval officer among our members whose death we have to deplore.

Born in 1879 he was the second son of the 4th Earl of Bradford and the brother of the present Peer, who is himself at the front, as well as a younger brother, Major The Hon. H. G. O. Bridgeman, R.H.A. Richard Bridgeman entered the Navy and served in various parts of the world, including the China Station and the Cape Station where he was during the South African war. In 1911 he was the naval officer appointed to accompany the King during his State visit to India. He was 1st Lieut. of the 'Medina' and commanded the naval guard at the Delhi Durbar. On his return home he was promoted Commander. In June 1914 he was appointed Flag Commander to the Commander-in-Chief of the Cape Station, and he subsequently took part in the naval operations on the East African coast. He was awarded the D.S.O. for his gallant conduct during the attack on Tanga Harbour, and he also was present at the destruction of the German cruizer 'Königsberg,' where he had a narrow escape—a bullet passing through his cap.

He had also had his share of the military campaign in German East Africa, where he was employed as "liaison" officer between the Commander-in-Chief of the naval forces and General Smuts, and frequently acted as observer in aerial reconnaissances, during one of which he was unfortunately killed.

Commander Bridgeman was a typical British sailor and a great favourite. He was a very keen sportsman and a good shot, and it was this that lead him to interest himself in birds. During his earlier period of service on the Cape Station he did a good deal of collecting and was a frequent visitor to the South African Museum in order to name his specimens and acquire information. He had a great gift for painting in water-colours and made life-like studies of the birds he came across. He became a member of the Union in 1902, but did not, so far as we are aware, write on ornithology.

RICHARD JAMES BALSTON.

We regret to announce the death of Mr. R. J. Balston, of Springfield near Maidstone, which took place on 7 December, 1916; he had been a Member of the Union since 1889.

Mr. Balston, who was the eldest son of Richard E. P. Balston, was born at Maidstone 5 March, 1839, and was educated at Eton. Entering the family business of paper manufacturers, he was the head of the firm at his death, and was well known as the originator of the celebrated "Whatman" paper. He was a yachtsman and a sportsman, and took great interest in agriculture and other county interests, and served as High Sheriff of Kent in 1894.

He collaborated with Mr. E. Bartlett and Mr. C. W. Shepherd in the preparation of a work on the birds of Kent, which was published by Porter in 1907 and was reviewed in our pages the following year ('Ibis,' 1908, p. 175), and this, so far as we are aware, was his sole venture in ornithological writing.

Four years ago Mr. Balston presented to the Natural History Museum at South Kensington a fine collection of Humming-birds mounted for exhibition in cases. These are now placed in the long passage running the length of the Bird-gallery and giving access to the Reptile, Fish, and Invertebrate exhibition-galleries of the Museum.

THOMAS HUDSON NELSON.

By the death of Mr. Nelson, on 5 November last, Yorkshire lost one of her foremost naturalists and the British Ornithologists' Union a worthy member. Mr. Nelson was born on 12 February, 1856, at Bishop Auckland in the County of Durham (where his father was a prominent citizen) and was elected a member of the Union in 1882. He was of a singularly amiable disposition, and a most excellent friend; and he will be greatly missed by a large circle of friends, to whom his death came as a surprise, though he had long been in a delicate state of health. As an ornithologist, he was best known as the author of 'The Birds of Yorkshire,' a work of great merit and one of the best books of its kind that has ever appeared. This work was commenced by Dr. Eagle Clarke, who had to abandon it on his translation to Edinburgh in 1888. At Eagle Clarke's recommendation, the Yorkshire Naturalists' Union, in whose Transactions the work was appearing, selected Mr. Nelson to continue it. Eagle Clarke rendered his friend valuable assistance by handing over to him the whole of his collected information upon the subject, and also by acting as adviser during the progress of the book. Mr. Nelson's other contributions to our favourite science were more or less of a local nature, and related to observations of the bird-life of the Redcar district, in which he spent the greater part of his life as a man of independent means. He was an active member of the Yorkshire Naturalists' Union, and was for some years President of the section of Vertebrate Zoology of that Society and an Assistant Editor of its journal, 'The Naturalist.' In recognition of his contributions to the ornithology of Yorkshire he recently received the honorary degree of Master of Science at the hands of the Leeds University. He was also a Justice of the Peace for the North Riding of Yorkshire.

EDGAR ALEXANDER MEARNS.

From the pages of the 'Auk' we learn with regret that Dr. Mearns, well known for his writings on African birds, died at Washington, D.C., on 1 November, 1916.

Born at Highland Falls, N.Y., in 1856, Dr. Mearns graduated from the College of Physicians and Surgeons (Columbia University) in 1881. Two years later he was appointed First Lieutenant and Assistant-Surgeon in the Medical Corps of the United States Army, and he remained on active service for twenty-five years, retiring with the rank of Lieut.-Colonel in 1909.

During his period of service he was stationed for some time in Arizona and took part in the work of the Mexican Boundary Commission in 1892–94. He also saw service in the Philippines. He published several papers on the birds of both these regions.

In 1909 Dr. Mearns accompanied Col. Roosevelt on his expedition to British East Africa and Uganda, and in 1911–12 he visited Abyssinia as field-naturalist of the Childs-Frick African Expedition. Since his return from Africa he has been engaged in working up his African collections at the United States National Museum at Washington. He had already published a number of papers on the most interesting novelties which he found among the birds, and at the time of his death was preparing a comprehensive report on the birds obtained in Africa. It is much to be hoped that this work is in a sufficiently advanced state to enable it to be completed and published.

Dr. Mearns was an enthusiastic all-round naturalist. An indefatigable collector, he also had the ability and desire to work out his own collections. He was a Founder (an original member) of the American Ornithologists' Union, and his death is a great loss to American Ornithology.

Foster Ellenborough Lascelles Beal.

The 'Auk' for January also announces the sudden death of Prof. Beal at his home in Maryland on 1 October, 1916, in his 77th year. He was a Fellow of the American Ornithologists' Union, and well known for his many researches into the food-habits of American birds.

Born at South Groton in Massachusetts in 1840, his early life was spent on a farm; but he was determined to acquire an education, and graduated at the Massachusetts Institute of Technology in 1872. He held various teaching posts until 1892, when he was appointed to the service of the Biological Survey in connection with the Agricultural Department at Washington. He continued in this employment until he died, and prepared either wholly or in part some twenty-four official publications besides numerous other scientific articles, almost all in connection with his researches into the food-habits of birds. He was one of the originators of the present system of the examination and analysis of the contents of stomachs and crops, and played an important part in the building up of the existing system of laws for the protection of American birds.

XV.—*Notices of recent Ornithological Publications.*

Baker on Indian Game Birds.

[The Game Birds of India, Burma, and Ceylon. By E. C. Stuart Baker. Part xx.: with a coloured Plate. Journ. Bombay N. H. Soc. 1916, pp. 623–638.]

In this instalment of Mr. Baker's review of the Indian Game-birds the genus *Crossoptilon*, containing the Eared Pheasants of the higher Himalayas and Tibet, are considered, and some very useful and valuable remarks on the classification and taxonomy of this interesting group is given.

Mr. Baker recognises three species, two of which are divided into two subspecies, making five forms in all; they are separated partly on their general colour and partly on the number of tail-feathers, which varies from twenty to twenty-four. Seebohm's *C. leucurum*, obtained near the Sokpo Pass in Tibet, is considered identical with *C. drouynii* collected by Père David at Moupin, and this latter is placed as a subspecies of *C. tibetanum*, the type-form occupying a western and north-western habitat as compared with *C. t. drouynii*. The darker grey *C. auritum* and *C. harmani* are considered to constitute a second pair, the former in western China, the latter in the Abor and Mishmi hills. The third species, *C. mantchuricum*, appears to be confined to Manchuria and north-eastern China. A beautiful coloured plate by Grönvold of *C. harmani* enhances the value of this interesting paper.

Despott on Maltese Breeding Birds.

[The Breeding Birds of Malta. By Giuseppe Despott. Zoologist, 1916, pp. 161–181.]

Mr. Despott, the Curator of the Natural History Museum at Malta, has already sent us a new list of the birds of that island, which we noticed in 'The Ibis' for July of last year. He has also written a little account of the birds which breed in the island and of their nesting-habits; the number is only thirty-two, and Mr. Despott is rather gloomy about the future of some of these even, so unrestricted has been the destruction of bird-life among the Maltese sportsmen!

Through the efforts of Mr. Despott a new set of regulations for preventing the destruction of birds has recently been drawn up and promulgated, which if made effective would certainly have helped to preserve and increase the number of birds in Malta. Unfortunately, after a somewhat acrimonious debate in the Government Council on the subject, the promulgation of the regulations appears to have been postponed for six months owing to the objections raised by the unofficial members of the Council, while the Lieut. Governor and the Crown Advocate spoke very strongly in favour of the regulations. It is to be hoped that some means may be found to settle the question favourably to the bird-life of Malta, and that Mr. Despott and his friends will eventually succeed in their efforts.

We have to thank Mr. Despott for a copy of the proposed regulations and for an account of the debate in the Council taken from the Daily Malta Chronicle.

Mathews on the Birds of Australia.

[The Birds of Australia. By Gregory M. Mathews. Vol. vi. pts. 1, 2, pp. 1–104, 105–216, pls. 267–282, 283–290. London (Witherby), Febr. 1917. 4to.]

The first pages of the present instalment of this work are devoted to a thorough, and to our mind most interesting, discussion of the classification and nomenclature of the Psittaciformes, or Parrot-alliance, which is supplemented under the several genera and especially *Kakatoe.* Mr. Mathews takes us back to the times of the early voyages in the Pacific, Dampier, Cook, and others; and follows with a consideration of the writings of Banks, Shaw, Latham, Temminck, Kuhl, Vigors, and Horsfield, which lead up to those of later authorities on Parrots, such as Finsch and Salvadori. He finds the Watling drawings of comparatively little assistance.

Linnæus placed all forms under the single genus *Psittacus*, but this was soon subdivided; G. R. Gray, for instance, admitted five Subfamilies under the head of one Family, while Bonaparte raised the group to the position of an Order, under which he classed the Families *Psittacidæ* (with seven Subfamilies) and *Strigopidæ* (with two).

Mr. Mathews reprints Count Salvadori's arrangement for comparison with his own, which is as follows, as far as Australia is concerned:—*Trichoglossidæ*, *Opopsittidæ* (sole genus *Opopsitta*), *Proboscigeridæ* (sole genus *Probosciger* for *Microglossus aterrimus*), *Kakatoeideæ* (Subfamilies *Calyptorhynchinæ* and *Kakatoeinæ*), *Leptotophidæ*, *Loriidæ*, *Polytelitidæ*, *Platycercidæ*, and *Pezoporidæ*. He relies on both structural and superficial characteristics for his decisions, and creates new Families, *Leptolophidæ*, *Proboscigeridæ*, and *Polytelitidæ*, while the "ancient forms" *Pezoporus* and *Geopsittacus* are removed from the *Platycercidæ* and placed with *Melopsittacus* in a Family *Pezoporidæ*.

The following points also call for notice: *Calyptorhynchus* is cited as of Desmarest, *Trichoglossus* as of Stephens. Under the latter *T. moluccanus* supersedes *T. novæ-hollandiæ* and *septentrionalis* stands as a subspecies with *colesi*, and *eyrei* as "secondary subspecies," which we take to mean "hardly recognisable." Of *T. rubritorquis* the subspecies *melvillensis* is dropped.

The author's *Eutelipsitta* is retained for the species *chlorolepidota*, with the subspecies *neglecta*, *minor* being quashed. Similarly, under his *Psitteuteles versicolor*, *mellori* and *whitei* are expunged. *Glossopsitta* has three species, *concinna*, *pusilla*, and *porphyrocephala*, the only subspecies preserved being *whitlocki* under the last. A new subgenus, *Parvipsitta*, is proposed for the second and third species. *Opopsitta* is upheld, as against *Cyclopsitta* of Reichenbach, with woodcuts to show the mistakes of the author; the subspecies *boweri* is dropped under *C. leadbeateri*, as is the subgenus *Manopsitta*. New genera, *Nannopsittacus* and *Cruopsitta*, are also proposed in the *Cyclopsittacine* group, on account of the square tail and feathered cere respectively.

Next we have a thoroughly elaborated account of the

Black Cockatoos, with the six subspecies of *Probosciger aterrimus*, one of which (*oorti*) is new. Woodcuts of bills are given to justify the separation of *Zanda* and *Harrisornis* from *Calyptorhynchus*. The confused synonymy of *C. banksii* is debated, and mistakes due to confounding the males, females, and immature explained. Of five subspecies recognised, *samueli* is new. Under *Harrisornis*, *lathami* is preferred to *viridis* of Vieillot, and the subspecies *kalmaturinus* is dropped. Similarly, *tenuirostris* is given up under *Zanda bandinii*; but *xanthonotus* and *whitei* are retained under the species *funerea*, which is now definitely assigned to *Zanda*.

A new genus, *Callocorydon*, takes the place of *Callocephalon* for the Gangang, which stands as *fimbriatus* (Gm.), with a new subspecies *superior*, *tasmanicus* being, moreover, rejected.

We now reach the White Cockatoo, of which the distribution is discussed at length, and seven subspecies allowed, *interjecta* being new. The extra-limital forms are also brought under consideration, and from four to six subspecies sustained, including a new one, *aruensis*.

As side issues Mr. Mathews cites and rejects names given by Bourgeot St. Hilaire, while he proposes *Eucucatua* for *Kakator*, if the latter is not approved.

Finally, he retains *Lophochroa* Bp. for the species *leadbeateri*, and *Ducorpsius* Bp. for *sanguineus*; to the former he allots four subspecies, *superflua* being new, to the latter five, *westralensis* and *normantoni* being also additional.

Peters on a new Swift.

[A new Swift from Santo Domingo. By James Lee Peters. Proc. New Engl. Zoöl. Club, vi. 1916, pp. 37–38.]

Mr. Peters describes *Streptoprocne zonarius melanotus* subsp. nov., allied to but distinct from the Cuban and Jamaican forms. It was collected by the describer himself in Santo Domingo, and is now in the Museum of Comparative Zoölogy at Cambridge, Mass.

Riley on new Neotropical Birds.

[Three remarkable new species of birds from Santo Domingo. By J. H. Riley. Smithsonian Misc. Coll. vol. 66. no. 15, 1916, pp. 1–2.

Two new Ralliformes from Tropical America. By J. H. Riley. Proc. Biol. Soc. Wash. xxix. 1916, pp. 103–104.]

Dr. W. L. Abbott, the well-known traveller, who has done so much collecting in the Malayan region, has recently been able to reach the highlands of Santo Domingo, which forms the eastern half of that hardly yet explored island of Hayti.

He has sent, among others, three interesting new forms to the U.S. National Museum:—*Asio noctipetens*, allied to *A. stygius*, the Antillean Long-eared Owl; *Loxia megaplaga*, a resident form of the White-winged Crossbill; and *Brachyspiza antillarum*, a form of Song-Sparrow related to the one found in Costa Rica. No representative of the two last-named genera has previously been obtained in the Antilles.

In the second paper, *Fulica americana grenadensis* from Grenada, West Indies, and *Creciscus murivagans* from Lima in Peru, are described as a new subspecies and species respectively.

Thorburn's British Birds.

[British Birds, written and illustrated by H. Thorburn, F.Z.S., with eighty plates in colour showing over four hundred species. In four volumes. Vol. iv. pp. viii+107. London (Longmans), 1916. 4to. Price £6 6*s*. 0*d*. net for the four vols.]

Mr. Thorburn has now completed his task and his last volume is before us. It contains the shore-birds and the sea-birds, and certainly maintains the high standard set in the previous volumes. Perhaps of all the plates the frontispiece illustrating the Terns is the one which gives us most pleasure; but in this case the birds themselves are among the most graceful and delicately-coloured of all the whole class and lend themselves to form a beautiful picture.

If we may criticize, it appears to us that the difference in the length of the tails of the Common and Arctic Terns is unduly emphasized, as well as the difference in colour of the underparts, but this is a minor matter. The only other picture we would like to mention in a critical manner is that of the Pratincole on plate 62. In this case the rufous of the under wing-coverts appears to be too conspicuous and extensive, but doubtless there is a certain amount of individual variation in this character.

On the whole, we have nothing but praise for an admirable series of portraits of our native birds, beautifully reproduced and sold at a price never previously possible for so fine a work.

The account of each species given in the letterpress is short but to the point, and often contains an interesting remark or an account of an observation made by Mr. Thorburn himself, who has had many opportunities of watching birds in various portions of the British Islands.

We heartily congratulate Mr. Thorburn on the completion of his splendid work, and strongly recommend it to the notice of all lovers of British birds.

Whistler on Punjab Birds.

[A Note on some Birds of the Gujranwala District, Punjab. By Hugh Whistler. Journ. Bombay N. H. Soc. 1916, pp. 689 710.]

The district of Gujranwala, in which Mr. Whistler was stationed during the greater part of 1915, borders on that of Lahore; it is in the north-west portion of the Punjab and not far from the Himalayas. A long list of the birds observed is given, and in many cases notes on nidification and migration are added.

Bird Notes.

[Bird Notes. The Journal of the Foreign Bird Club. Edited by Wesley T. Page. Vol. vii.; 12 nos. for 1916. Ashbourne (Avian Press).]

The volume of 'Bird Notes' for last year contains the usual number of pages and seems not to have suffered at all in spite of the difficult times we are passing through. There are a large number of articles of strictly avicultural interest in regard to the construction and planning of aviaries, the breeding of rare species, and other matters of special interest to aviculturists and others which we fear we hardly have space to comment on, but we should like to draw the attention of our readers to one or two of the more generally interesting contributions.

Mr. E. Hopkinson, D.S.O., has prepared an exhaustive history of the Budgerigar from the time of Latham, who first brought the bird to notice. It is stated to have been introduced as a cage-bird into this country by John Gould about 1840, while its later history, and especially the first appearance of the blue variety in England in 1910, is of great interest.

Major Perreau continues his notes on the birds to be seen about Bakloh in the Punjab and also about those he has in his aviaries at the same place. Mr. F. Dawson Smith writes on the birds he noticed when on a visit to Achill Island on the west coast of Ireland last year, and Mr. Shore Baily has an article, among many, on the Grebes of England and California, and he tells us that the "Grebe fur" so often worn by ladies is prepared from the skins of *Æchmophorus occidentalis,* a Californian species which is found in countless numbers in the swamps of that State.

Mr. Wesley Page contributes an interesting article on the "Endurance of Birds" as tested by his experiences in outdoor bird-keeping. He gives a long list of the species he has had in his aviaries, showing those which are, and those which are not hardy to our winter.

The only coloured plate is one illustrating the Purple Malachite and Black-breasted Sunbirds, drawn and coloured from examples exhibited at the Holborn bird-show in February last year. Some notes to accompany the plate are sent by the Hon. Mrs. G. Bourke, who owned and showed the birds.

From 'Timehri,' the organ of the Royal Agricultural Society of British Guiana, there is reprinted an article on "Some Colony Birds" dealing with many of the commoner birds of Demarara; this contains very useful accounts of the habits of a number of species not often written about. The author is the Rev. Charles R. Dawson, S.J.

The Condor.

[The Condor. A Magazine of western Ornithology. Vol. xviii. Nos. 1–6, 1916. Cooper Ornithological Club. Hollywood, Cal., U.S.A.]

As is usually the case, most of the articles in the last completed volume of the 'Condor' deal with the birds of California or the neighbouring western States of the Union. In fact, the only paper on what may be termed exotic ornithology is one by Dr. T. W. Richards, of the U.S. Navy, on birds nesting at Guantanamo Bay, Cuba, in which he gives a more particular account of the nest of the Grasquit, *Tiaris canora*, a species which finds a place in the A. O. U. List by virtue of its accidental occurrence on Sombrero Key off the southern extremity of Florida.

Among faunal papers Mr. S. G. Jewett contributes an account of some new and rare records from Oregon, and notes on some birds of Tillamook county in the same State; Mr. R. H. Palmer sends a description of the bird rookeries in some of the islands of Great Salt Lake in Utah, where the California and Ring-billed Gulls, White Pelicans, and Blue Herons nest in countless numbers; Mr. N. de W. Betts writes on the birds of Montana, Mr. Pierce on those of the San Barnardino Mountains of California, and Mr. A. B. Howell on those of Arizona during the winter months.

Mrs. Miriam Bailey continues her very readable series of sketches of bird-life in the western States, dealing successively with the sloughs and marshes of Dakota, the lakes of Dakota, the sea-beaches near Los Angeles in California, and the prairies of southern Texas along the Mexican border.

Articles on single species, generally illustrated with photographs of nests and eggs, are those by Mr. Huey on *Creciscus coturniculus*, the Farallon Rail, in southern California, by Mr. Skinner on the Nutcracker of Yellow-stone Park, by Mr. Newberry on the Wren-Tit (*Chamæa fasciata*), and by Mr. Willard on the disappearing Banded Pigeon (*Columba fasciata*) in Arizona.

The editor of the 'Auk,' Mr. Witmer Stone, prints a charming address read at the meeting of the A. O. U. at San Francisco in 1915. He traces the history of Californian and western ornithology from the time of Capt. Cook, who obtained several birds at Nootka Sound, Vancouver I., until 1850, when the great immigration into western America took place and the country became more or less settled.

Mr. W. L. Dawson, who is to be the Director, outlines his plans for the erection of a new Museum of Comparative Oology which has recently been founded at Santa Barbara. A State Charter has been procured, Boards of Trustees and Visitors appointed, and a site obtained, but actual building will not be commenced for three years. The Museum is eventually to comprise a group of twenty-two buildings! Mr. Dawson writes very sensibly on some of the problems of ornithology and oology, on which he hopes some light may be shed by the acquisition of a really cosmopolitan collection.

Irish Naturalist.

[The Irish Naturalist. A monthly Journal. Vol. xxv.; for 1916 12 numbers.]

The 'Irish Naturalist' for last year contains several articles on the Crossbill. Mr. C. B. Moffat, whose experiences are chiefly in Co. Dublin and Co. Wexford, has found them breeding regularly since 1909, when a large incursion occurred, and he noticed that they were particularly abundant in 1915. He has also observed that the Crossbills now in this part of Ireland appeared to prefer the cones of the Larch and Scotch Fir and never touch those of the Spruce. It is said that on the Continent the Spruce seeds form the greater part of their diet. Mr. Moffat's observations are confirmed by Mr. C. J. Carroll, who sends a history of the Crossbill in Tipperary, where he has found it nesting every year since 1910. The nest is almost invariably placed in a

Scotch Fir, but there was much variation in the lining of the nests, which were formed of either fine roots, feathers, moss, or even lichen. Mr. Carroll also states that the birds he observed fed almost exclusively on the seeds of the Scotch Fir and never on those of the Spruce.

Another article by the same author, Mr. Carroll, deals with the growing scarcity of the Raven in Cos Waterford and Tipperary. They used to be quite common in these counties, but they have been destroyed by the poison laid in the wilder parts for the destruction of foxes. Now only some half-dozen pairs are found along the sea-cliffs and in the precipices of the mountains in Waterford, while in Tipperary they are probably extinct.

Another Irish bird now probably extinct is the Golden Eagle. What was probably the last individual left in Ireland, a female, is stated by Mr. W. J. Williams to have been killed in Co. Mayo in October 1915.

Some careful observations on the habits of the Nightjar in the Enniskillen bogs are contributed by Mr. J. P. Burkitt, and Prof. C. J. Patten sends some notices of the occurrence of rare birds at the lighthouse on the Tuskar rock off the Wexford coast, including the second Irish record of the Tree-Pipit and the first of the Black-eared Wheatear.

Irish ornithology has recently suffered a great loss in the death of Mr. Robert Warren on 26 November, 1915, and we regret that no previous mention of this has been made in the pages of 'The Ibis.' A full biographical notice with a portrait and a list of his writings is contributed to the March number of the 'Irish Naturalist' by Mr. C. B. Moffat. Born in 1829 he was a correspondent of Prof. William Thompson of Cork, and assisted him in the preparation of his work on Irish birds. Later on he was associated with Messrs. Barrington, Ussher and Moore in the preparation of the more recently published 'Birds of Ireland." He added the White Wagtail and the Pied Flycatcher to the Irish list and made many other observations and discoveries in Irish ornithology, and the list of his writings dates from 1857 to 1914.

Messager Ornithologique.

[Messager Ornithologique. Septième année, 1916. 4 nos., pp. 1–264. Moscow.]

The four numbers of the Russian 'Messager Ornithologique' for last year have reached us regularly and contain a number of papers almost entirely restricted to the study of the birds of the Russian Empire. Unfortunately, except in the case of a few authors who provide resumées in English or German, the language used is Russian, and we can only indicate the titles of most of the papers.

Of faunal papers the editor, Mr. Poliakov, completes his account of the birds of the upper Irtysh valley. It has been running through several volumes and is separately paged, and will no doubt be issued as a separate volume later on. Mr. E. I. Ispolatoff writes on the birds of the Government Olonetz, Prince Alexander Koudashev on those of the Black Sea Government and Mr. A. M. Kaminsky on those of the Moscow Government. Mr. Ingarinow has two articles on the birds of north-western Mongolia with a short German summary, and Mr. Buturlin sends a seventh contribution on the birds of Ussuri and the Coast Province between the Amur river and the Japanese sea. He reviews the subspecies of the Hazel Hen (*Tetrastes bonasia*), of which he recognises seven forms. Four of these are described for the first time: *T. b. kolymensis*, *T. b. amurensis*, *T. b. volgensis*, and *T. b. ussuriensis*.

Among other taxonomic papers Mr. N. A. Zarudny reviews the Swallows of Turkestan and describes as new, *Riparia riparia plumipes*. The Siberian Jay (*Perisoreus infaustus*) also comes in for drastic subdivision at the hands of Mr. Buturlin, who recognises six races, two of which are new—*P. i. sakhalinensis* from Saghalien and *P. i. ruthenus* from Russia and western Siberia. *P. i. sibiricus* is renamed *P. i. yakutensis*, while the type form is confined to northern Scandinavia. Prince A. Koudashew reviews the Russian Hawfinches and recognises four races of the typical species as well as two distinct species, *Coccothraustes japonicus* from Japan and *C. humii* from Turkestan and India. The new form is *C. c. tatjanæ.*

Field-notes with two photographs of nests of *Acrocephalus palustris* are contributed by Mr. Shtoehr, and Mr. V. E. Ushakow sends an account of the nest and eggs of *Numenius tenuirostris* with a figure, and Mr. Poliakov has a photograph of the nest of the Black-throated Diver on a lake in the neighbourhood of Moscow.

An article on the migration of the White Stork in spring is given by Mr. A. A. Browner and one on ringing nestling birds in south Finland by Mr. H. Grote, while an interesting note is sent by Mr. H. Johansen of the capture in Norway in October of a young Redwing ringed in the nest in the previous May near Tomsk in Siberia.

Revue Française d'Ornithologie.

[Revue Française d'Ornithologie, scientifique et pratique. 8e Année, Nos. 81–92. Paris, 1916.]

Last year's volume of the French Ornithological Journal continues to uphold the position it has made for itself, and contains a number of articles appealing to the amateur as well as to the professional bird-lover.

M. Brasil concludes his notes on the birds of New Caledonia and Lifou in which he gives some interesting taxonomic and other information, and M. J. Loranchet continues his account of the birds of Kerguelen, which are illustrated with some of his own photographs. He spent some eight months on the island and had ample opportunities of making observations on the birds he writes about.

Another article on an exotic fauna is that of Drs. Bonet and Millet-Horsin on the birds of the Ivory coast or Dahomey; observations were made both in the savanna regions of the interior and also in the forested country along the coast, and a list of 144 species is recorded.

Among the more important contributions on the French avifauna are those of M. J. L'Hermitte on the birds of

Provence and of M. E. Coursimault on the birds found round about Vendôme. This writer pays special attention to the songs and notes of the various species and in many cases reduces them to musical notation.

M. Brasil is able to record the capture of *Larus glaucus* and *Dryobates medius*, both in the Department of Calvados. The first of these was a female in quite adult livery, a plumage in which these birds are seldom taken on the French coast; the second is probably a new record for Calvados.

A special supplement to the February number is devoted to an article by Dr. R. Didier on the Tufted Puffin on the North Pacific (*Lunda cirrhata*). It is illustrated by a lithographic plate.

M. A. Hughes writes on the habits of *Cisticola cisticola* in southern France. He believes that it is undoubtedly a resident and does not migrate to any extent. This is borne out by the habits of the other members of the genus found chiefly in Africa.

An interesting note by M. Reboussin comments on the numbers of birds to be seen and heard in the country to the north of Verdun, notwithstanding the constant artillery duels going on day and night. Similar statements have been made by some of our English observers serving in the trenches in other parts of the line.

The Scottish Naturalist.

[The Scottish Naturalist. A Monthly Magazine devoted to Zoology. Jan.-Dec. 1916.]

Among ornithological contributors to the 1916 volume of the 'Scottish Naturalist,' Miss Baxter and Miss Rintoul take a prominent place with several articles of special interest. Their first paper deals with the moulting of northern breeding birds in their winter quarters. This is found to be very extensive in many species such as the Red-throated Pipit (*Anthus cervinus*), two males of which, taken in February on the Andaman Islands, were in full moult, not only as regards the body-feathers but also the wing-

and tail-feathers, though it has been stated that the spring moult of the Pipits extends to the small feathers only. This is the case with many other birds, especially among the Waders, many of which were found to be moulting in November or earlier, soon after their arrival in southern latitudes. Dr. Claude Ticehurst also writes on the same subject in reference to a previous paper by Miss Baxter and Miss Rintoul, confirming and adding to their observations on the migration of birds from Great Britain in moult.

Another contribution by the same two ladies gives us a list of the continental racial forms of various British birds which migrate through, or winter in, our islands; they mention some of the more distinctive characters of these races and give instances of their occurrence. We notice that they continue to insist on the possibility of distinguishing the Continental and British races of the Gold-crest and Hedge-Sparrow, in contradistinction to the views put forward in the new B. O. U. List of British Birds.

The July–August number of the magazine is entirely devoted to the "Report on Scottish Ornithology in 1915," by the same two ladies, a most valuable summary of work done in Scotland. Though the writers were hampered by military restrictions and the absence of many observers, their report contains many items of interest such as the wintering of the continental race of the Great Tit in Scotland, but most of the new records have already been published elsewhere. Summaries are given of ringing results, plumage variation, habits and food, migration, including a summary of weather conditions and notes on movements arranged under species.

The Editor, Mr. Eagle Clarke, records the occurrence of the British Tree-Creeper in the island of Lewis, a place entirely unsuitable to its habits owing to the absence of trees. The bird was evidently blown over from the mainland by a severe storm. Another interesting record is that of the Continental Barn-Owl taken on Unst, Shetland. No Barn-Owl has previously been recorded from Shetland, and the continental form *Flammea flammea guttata* was not previously known from Scotland, and is only a very rare visitor in England. From St. Kilda Mr. Clarke has received a Water-Rail (*Rallus aquaticus*): it was doubtless a passage migrant.

Mr. Eagle Clarke also describes the plumage of a young female of the Pied Wheatear (*Œnanthe leucomela*) taken on the island of Swona in the Orkneys. The only British example previously known was one from the Isle of May in 1909.

Among shorter papers is one by Mr. W. Berry in which he draws attention to the recent extension of the range of the Crested Tit (*Parus cristatus scoticus*) into north-eastern Inverness-shire and eastern Ross-shire. Mr. R. Clyne writes on the movements of the Gannet at the Butt of Lewis to and fro from the gannetries at St. Kilda and Stack; while Mr. William Evans states that the authority for the occurrence of the Levantine Shearwater in Scottish waters is the late Mr. E. T. Booth, who obtained an example from the Firth of Forth in August 1874. This specimen is now in the Booth Museum at Brighton.

A good portrait and memoir of the late Mr. J. A. Harvie-Brown is to be found in the September number.

Yearbook of the Barcelona Science Club.

[Junta de ciències naturals de Barcelona. Anuari 1916. Barcelona.]

This Annual is issued in connection with a new Museum recently founded at Barcelona. It had its origin in the private collection, chiefly in conchology and archæology, of Señor Martorell i Penya, who bequeathed not only the collections but also his house, furniture, and library to the city of Barcelona, as well as a considerable sum of money for upkeep.

The only contribution of ornithological interest in the Annual is a list of the collection of birds, which seems hardly worthy of so fine a Museum as this appears to be, judging from the photographs reproduced in the volume. There are, however, a number of contributions dealing with other zoological matters which no doubt contain valuable additions to knowledge. The papers are all written in the Catalan dialect of Spanish and this renders them difficult to understand, especially if one has but a small knowledge of Spanish.

Yearbook of the Dutch Bird-Club.

[Club van Nederlandsche Vogelkundigen. Jaarbericht, no. 6. Deventer (Kluwer), 1916.]

The chief contributor to this annual publication is the President of the Club, Baron Snouckaert van Schauburg, who sends his usual report on events of ornithological importance which have taken place in Holland between the dates October 1915 and September 1916. A bird new to the Dutch avifauna, *Puffinus gravis*, was found dead on the coast at Noordwijk, and Baron Snouckaert comments on the enormous number of Wood-Pigeons which wintered in Holland in 1915–16, due partly, he believes, to the abundant supply of beech-nuts. A white Swallow with black eyes, taken in August, is figured. There is also a long paper by Baron Snouckaert on the birds of Harar in south-eastern Abyssinia. This is based on a collection of 277 skins, representing 131 species, collected by Mr. Gunnar Kristensen in the neighbourhood of that place. Though no new species are described, there are many interesting records, and we observe that Baron Snouckaert is most up-to-date in his nomenclature, and that the bulk of the forms noticed bear three names.

"A. C." writes on the birds of Baarn and its neighbourhood; this is a topographical and ecological study, and is illustrated with a map of the district, which is not far from Hilversum, near Amsterdam.

Mr. Eijkman writes on the use of an electrical release for the shutter of a bird-camera, and Mr. Hans contributes an excellent photograph of *Anthus campestris* with nest and young birds.

List of other Ornithological Publications received.

Mullens, W. H. & Swann, H. K. A Bibliography of British Ornithology. (Part V. London, 1917.)

Witherby, H. F. On some Results of ringing Song-Thrushes, Blackbirds, Lapwings, and Woodcock. ('British Birds,' Vol. x. No. 9. London, 1917.)

The Auk. (Vol. xxxiv. No. 1. Cambridge, Mass., 1917.)

Avicultural Magazine. (Third Series, Vol. viii. Nos. 1–5. London, 1917.)

Bird Notes. (New Series, Vol. viii. No. 1. Ashbourne, 1917.)

British Birds. (Vol. x. Nos. 9, 10. London, 1917.)

The Condor. (Vol. xix. No. 1. Hollywood, Cal., 1916.)

The Irish Naturalist. (Vol. xxvi. Nos. 1–3. Dublin, 1917.)

Journal of the Federated Malay States Museum. (Vol. vii. pt. 2, Singapore, 1916.)

Revue Française d'Ornithologie. (Nos. 93, 94. Orléans, 1917.)

The Scottish Naturalist. (Nos. 61–63. Edinburgh, 1917.)

The South Australian Ornithologist. (Vol. iii. pt. 1. Adelaide, 1917.)

XVI.—*Letters, Extracts, and Notes.*

Colours of the Eggs and the Nests of Birds.

Sir,—I write to correct a wrong impression of my view on "Coincidence" and mimicry which may have been left as the result of an omission (already referred to) from my April paper, and of the fact that the full explanation of the egg-plate in the succeeding article (October) reached you when the latter was already in paged proof.

The view suggested in these two places was, briefly, that variation in mouths and eggs (and, I believe, elsewhere) is, to an immense extent, not lateral, so to speak, but backward and forward along the line of already-accomplished evolution—a matter, probably, of the suppression or restoration in ontogeny of particular colour-changes corresponding to particular ancestral stages, intermediate as well as terminal.

In *nestlings'* mouths it seems to be also a matter of relative acceleration. Thus, allowing for cases of suppression (which are betrayed sometimes by incompleteness), the mouths of Passerine birds of various families run through what appears to be the same succession of changes, but particular stages coincide with different ages in different species, and sometimes even in individuals of the same species, producing inter-specific diversity and intra-specific variation and even the appearance of "mutation." It was in this sense that I used the term "reversionary" of the unusual Warblers' tongues of my text-figure ('Ibis,' 1916, p. 293), and I feel that it would have been exceedingly interesting had Capt. Ingram been able to see one or more of his aberrant Skylark mouths ('Ibis,' 1916, p. 523) before hatching, and keep track of the post-nidal development of the others, and to note that the plain yellow tongue was preceded or succeeded by a twin-spot stage. I must here qualify a statement, made in the present connection on p. 5C2, with regard to an incipient resemblance between a stage passed right through by the mouth of *Dryoscopus guttatus* and the final mouth of *Batis*, &c. The darkening never became more than incipient, and may or may not have been of significance. The real *blackening*, when it began, was centrifugal.

In applying this view to eggs—here it might be suggested that the successive processes of pigment deposition constitute an ontogenetic phenomenon—I used as illustrations especially figs. 5, 24, 25, and 20 ('Ibis,' 1916, pl. xix), representing sufficiently four forms of egg laid by members of the genus *Cossypha*. The egg of *C. natalensis*, normally at Chirinda the dark brown nightingale-like egg of fig. 20, is sometimes found with fewer pigment-layers (apparently, like fig. 24) and, rarely, as a pale blue egg like the Redstart's. Each form represents what is the *usual* egg at this moment, of others of the Turdidæ and is found also in other families. Conversely, *C. heuglini*, laying normally at Chirinda an egg more or less like fig. 25, was once found with eggs showing the additional heavy pigmentation of normal *C. natalensis* (fig. 20), the bird being secured at the nest. Col. Rattray's interesting "hedge-sparrow" eggs laid by a Nightingale (B. O. C. Bull. xxxvi. p. 79), the evidence of identity being here very perfect, constitute another of these cases. They strike us strongly in species in which they are of relatively rare occurrence, but what seems to be the same phenomenon can be illustrated abundantly from the common forms of eggs of more frankly heteroic species. That a Mendelian relationship exists between such forms seems exceedingly likely, and it is also probable enough that one of the main functions of the Mendelian mode of inheritance is the preservation of forms that have been useful in the past and may again be useful or are actually still useful for the production of advantageous polymorphism.

"The wide distribution" (I quote here from the draft of my discussion of the egg-plate) "of the twin-spot tongue in Passerine nestlings warns us that colour-characters that probably arose in a very far-back ancestor indeed may continue to be utilized by its descendants in families now widely divergent; and considerations . . . . suggest that so-called cases of coincidence or parallel evolution may be, to a vastly greater extent than at first sight seems likely, instances of the phenomenon" I have re-suggested above. In other words, coincidence, whether it happens to subserve the purpose of mimicry and to receive thereby the support of selection, or whether it is purely useless *as* coincidence, is probably in the main a matter of reversion to the same point in a common ancestry, and there is probably very little *true* mimicry—based on new and independent coincidental variation—to be found in either the eggs or mouths of birds. One or two possible exceptions can be suggested.

Holding this view, and (p. 547) not laying "excessive stress on the occurrence" of mimicry, I will have seemed to have devoted undue space to the subject. But it was suggested to me (by more than one person) that, most ornithologists being necessarily less acquainted with the details of the theories of mimicry and warning colours than are entomologists, I ought to include in my paper a discussion of the principles involved; and I think it was perhaps well to do this even if I suggested mimicry merely "as a possibly useful line of contributory explanation" (p. 554). But I freely admit that I was in any case more inclined to believe in the probable occurrence of true mimicry in eggs and mouths at the time I commenced to write the paper than I am now.

The following corrections should be made:—

Page 555, line 30. For "few" and "elements" read "far" and "element."
,, 557, ,, 36. ,, "indicated" read "vindicated."
,, 558, ,, 11. ,, "probable" read "provable."
,, 563, ,, 11. ,, "those" read "three."
,, 564, ,, 11. ,, "chitinous" read "chitinless."
,, 568, ,, 25. ,, "in many cases" read "in any case."
,, 569, ,, 33. ,, "selection" read "selective." Also on p. 571, l. 8.
,, 572, ,, 9. ,, *Geochelidon* read *Gelochelidon*.
,, 573, ,, 8. ,, "hence" read "have"; omit "have" in next line.
,, 590, ,, 11. ,, "forms" read "form."
,, 596, ,, 9. ,, "as" read "or."
,, 529. Fig. 14 is *Hyphantornis jamesoni*, a Dicruroid form of the egg, not *Pycnonotus layardi*.

As for the *probability* of the view (p. 558, l. 11) that the influence exercised by parasitic birds may have been great, I need only say that I find it difficult now to regard it as a coincidence that the order which shows the greatest diversity in the coloration of its eggs should also be the one that is most liable to victimization by Cuckoos, and that my experiments in the substitution of eggs have convinced me that the need for the baffling of Cuckoos, leading to the encouragement of variability within the species, may well have been the primary, if indirect, factor in the production of that diversity as well as an important contributor to the production, incidental and otherwise, of distinctiveness of appearance in eggs of the same order.

The resemblance referred to on line 37 of p. 362 is one of rough general appearance.

Yours truly,
C. F. M. Swynnerton.

Gungunyana,
Melsetter, Rhodesia.
3 December, 1916.

Sir,—It is rather misleading to class such birds as the Lesser Black-backed and Herring-Gull as highly gregarious: the Common Gull as less so, and the Great Black-backed as least of all (p. 572). All these species are gregarious, but of course the Great Black-back is much less numerous in the British Isles than the others. Even here there are colonies where over fifty pairs breed together, and in Iceland I have known of over 1200 eggs taken from a single "holm." Mr. Swynnerton's statement that the eggs of the Great Black-back are "rather markedly uniform" must be founded on the comparison of a small or ill-selected series, for the range of colouring, from spotless blue to red, is as great as in the case of the Black-headed Gull. This is the more remarkable as the number of eggs examined of the former species bears no proportion to the countless thousands of those of the latter which have passed under the eyes of collectors. If only a limited number of the eggs of all our British breeding species were examined, and in every case the same number was available for comparison, the Black-headed Gull would not be regarded as a species laying variable eggs, but rather the reverse.

Yours truly,
H. R. Jourdain.

Appleton Rectory,
Abingdon, Berkshire.
15 January, 1917.

A Long-lived Eagle.

Sir,—In 'The Ibis' for 1877 my late father described (pp. 219–221) at some length a pair of White-shouldered Eagles (*Aquila adalberti* Brehm) which were obtained from a nest in Spain by Lord Lilford in May 1872, and Lord Lilford again refers to these birds in 'The Norwich Naturalists' Transactions' (vol. iv. pp. 566, 567). One of these Eagles was killed by an accident when about twenty-three years old, but the other has just died (December 26, 1916) at the patriarchal age of nearly forty-five, which may be worth putting on record.

Yours obediently,
J. H. Gurney.

Keswick Hall, Norfolk.
18 January, 1917.

The Damaraland Hornbill.

Sir,—Having been on active service ever since the beginning of the war I have had very little opportunity of studying 'The Ibis,' and it was only recently that the numbers for 1915 reached me here. I was very much interested in Mr. Claude Grant's excellent articles on the birds collected in British East Africa and Uganda. I wish all ornithologists would go as carefully into the subject as Mr. Grant and monograph each species and its various races.

I differ from Mr. Grant, however, in one point: he states that in his opinion the Red-billed Hornbill from Damaraland named *damarensis* is only an albinistic form of *Lophoceros erythrorhynchus caffer*. I am sure he is wrong in this. I have been collecting birds in this country now for some time and have had plenty of opportunity of observing the forms of Red-billed Hornbills, which are not uncommon, and the following are my conclusions:—The form found in the north of Damaraland, at this place for instance, is most certainly *L. erythrorhynchus caffer*, but as one goes south it gradually merges into *damarensis*; birds collected at Akanjande appear somewhat intermediate, some favouring *caffer* others *damarensis*. I am not sure how far south the Red-billed Hornbill occurs, but I know it is found as far south as Usakos, which is nearly the southern limit of the bush country. I have no specimens from this place, but when there I saw numbers which appeared very white on the head and neck.

The most southerly specimen I have is one from Omaruru, a male; this differs from *caffer* in having the whole sides of head and neck pure white, with only a very slight admixture of grey feathers on the sides of the neck, in having a much larger amount of white on the secondaries and wing-coverts, and in having the outer vanes of the two outer tail-feathers pure white; the bill also appears shorter and thicker.

Yours truly,
C. J. Finch-Davies, Lieut.,
1st S.A.M.R.

Tsumeb,
S.W. African Protectorate.
3 January, 1917.

The Steamer-Duck.

Sir,—May I be allowed to write a few lines in 'The Ibis' in reply to Mr. Phillips's letter about the Steamer-Duck published in the January number and in which my name is mentioned? It seems evident that Mr. Phillips's collector, Mr. Brooks, has only seen *one* species of Steamer-Duck and that *Tachyeres patachonicus.*

Mr. Philips has therefore experience of *one* species only, and accordingly it may perhaps be doubted if he can reasonably talk with authority about *two*! Mr. Phillips's collector has only been to the Falkland Islands, which are a stronghold of *Tachyeres patachonicus.* This is confirmed by everything he says about the subject. South America, however, is a big place, and it is unsafe to ignore the fact that there are other places than the Falklands where other species of Steamer-Ducks may occur. I refer to my papers in 'The Ibis' for July 1916 on the subject and wish to confirm every word I have written there.

That Mr. Brooks has not seen *T. patachonicus* fly and could not make them fly although he has seen "thousands," notwithstanding that those birds were, judging from his description, really *T. patachonicus*, only tends to prove that

Mr. Brooks had either exceptionally bad luck or was not able to identify those birds when seen on the wing.

I repeat that I have seen several pairs of *T. patachonicus* fly high overhead from the inland lakes of Tierra del Fuego to the sea and *vice versa*, and the birds after alighting on the water have come up close to me.

Mr. Phillips doubts the possibility of these birds being able to fly to inland Chilian lakes as has been recorded elsewhere. I can assure him that their flight is quite strong enough to make such a thing possible, although on a visit to one of those lakes (Lake Todos los Santos) I did not myself see any.

Many species of waterfowl are sluggish in rising from the water if forced to do so, but this does not prove their inability to fly. In Chilian mountain streams on the Argentine side of the Andes I could never persuade *Merganetta armata* to rise from the water, but I have seen them fly at some height of their own free will.

T. cinereus as seen by me in Smith Channel and northwards along the south coast of Chiloe goes mostly in pairs, both sexes being grey and the bills of both sexes being yellow. The living bird which I brought home was an adult female, and after its death this was verified at the Leyden Museum by competent persons. It is no use Mr. Phillips saying that such a bird does not exist because he has not seen one.

Tachyeres cinereus has quite a different look, and as soon as I entered Smith Channel and saw pairs swimming, they struck me as being quite distinct from the birds I had seen in Tierra del Fuego, both in appearance and in their way of moving.

I will here give an extract of a letter which was written to me on this subject by an Englishman, Mr. Stewart Shipton, of Concepcion, prov. Tucuman, who resides in the Argentine Republic, and whose collector had recently returned from a trip to the southern parts of South America. He writes, quoting his collector Mr. John Morgensen, a Dane :—" *Tachyeres patachonicus* stands out first, chiefly on account of its ability to fly ; but it is also distinguished from *T. cinereus* at a distance because it is smaller and the bill of the female is dark and by its having a better developed tail. *T. patachonicus* is more sociable, six or seven being seen often together.

"*T. cinereus* lives in pairs, stays in the same place all the year round, and perches on the same rocks. It is of a pale grey, a little darker on the body than on the head and neck. The extremities of the barbules are of lead colour. *T. patachonicus* is of a darker colour; the edges of their feathers are brown on top. *T. patachonicus* has the habit of pretending inability to fly while bringing up their young."

My opinion is that the origin of the doubt about the validity of the two species lies in the fact that most people have only seen one species, and that *T. patachonicus*, which is generally found in the more frequented parts of the Magellanic lands and to this species accordingly nearly all the skins in the European museums belong.

Tachyeres cinereus frequents the more secluded spots, which is only what one would expect, as the result of the birds inability to fly. In olden days, when the Straits of Magellan were not so much frequented as they are now, *T. cinereus* was probably a common bird there, so that the stories of the old seafarers rightly referred to that species. People, however, who travel there in these times find *T. patachonicus*, which has a general resemblance to it (but is quite different in reality), taking its place, and so the confusion arises. Besides, no one seems to have noticed—or, at least, to have published—the fact that the *female* of *T. patachonicus* has a dark bill and brown head.

Yours truly,
F. E. Blaauw.

Gooilust,
12 March, 1917.

Annual General Meeting of the British Ornithologists' Union.

The Annual General Meeting of the B. O. U. for 1917 was held on March 14 at the Offices of the Zoological Society of London, Mr. W. L. Sclater, in the absence of the President, being in the Chair. There were thirty Members present.

The Minutes of the last Annual General Meeting and of the Special General Meeting held on April 12, 1916, were read and confirmed.

The Secretary read the following report of the Committee for the past year :—

"The Committee have very much pleasure in being able to report that during 1915–16 they have reduced the deficit from £268 1*s.* 6*d.* on January 1, 1916, to £40 on January 1, 1917. The accounts for the past year, which have been audited and passed by Mr. H. Munt, show a very satisfactory result. The total receipts in 1916 have been £941 17*s.* 1*d.* as compared with £768 15*s.* 7*d.* in the previous year, whilst the total payments have been £938 9*s.* 4*d.* (of which £208 1*s.* 6*d.* were payments for liabilities incurred in 1915) as against £766 18*s.* 2*d.* in 1915. The large increase in the receipts is due first to the increase in the rate of subscription, and secondly to sales of The Ibis Supplement, General Index, and a large number of back volumes of 'The Ibis.' The balance carried forward to 1917 was £3 7*s.* 9*d.*, leaving a balance due to Messrs. Taylor & Francis on one account of £40.

"The cost of 'The Ibis' has been reduced from £505 2*s.* 6*d.* in 1915 to £465 1*s.* 11*d.* in the year under report. The present volume, which is the fifty-eighth and the fourth of the Tenth Series, contains 685 pages, and is illustrated with 5 coloured and 15 black plates and 12 text-figures. It has probably been reduced in cost to the minimum possible, and certainly far below the minimum desirable. The extra publications brought out by the Union are, however, now all paid for, and it will not be necessary in future to stint 'The Ibis' either in matter or plates.

"The sale of the General Index for the years 1895–1912 has been better than we anticipated, 145 copies having been sold. We have received since the 1st of January the sum of £50 from the Dutch New Guinea Expedition Committee.

"With regret the Committee report the deaths of the following Members since the last Annual General Meeting:— R. J. Balston, Commander the Hon. R. O. B. Bridgeman,

Lt.-Col. E. A. Butler, J. C. Crowley, Guy L'Estrange Ewen, Lt.-Col. H. H. Harington, J. A. Harvie-Brown, Lt.-Col. Boyd Horsbrugh, Lord Lucas, T. H. Nelson, Major F. W. Proctor, The Rev. Canon S. G. Scott, Captain F. C. Selous.

"The following gentlemen have resigned:—Dr. F. D. Drewitt, G. F. Buxton, The Hon. and Rev. Canon Dutton, M. D. Macnaghten.

"The name of H. M. King Ferdinand of Bulgaria has been removed from the list of Ordinary Members of the Union.

"The membership of the Union, and comparison with the previous five years, is as follows:—

	1917.	1916.	1915.	1914.	1913.	1912.
Ordinary Members ...	416	420	441	433	425	420
Extraordinary " ...	1	1	1	1	2	3
Honorary " ...	9	9	9	7	8	9
Hon. Lady " ...	9	8	6	6	6	6
Colonial " ...	10	10	10	9	9	9
Foreign " ...	19	19	20	19	20	20

"There are 16 candidates for Ordinary Membership, 1 for Honorary Membership, and 2 for Foreign Membership."

The Statement of Accounts for the year 1916, previously circulated to Members, was submitted and approved.

Mr. E. C. Stuart Baker was re-elected Honorary Secretary and Treasurer for the ensuing year, and Mr. H. E. Howard was elected a Member of the Committee in the place of Mr. Ogilvie-Grant, who retired by rotation.

Mr. E. G. B. Meade-Waldo and Mr. Hugh Whistler were appointed Scrutineers to superintend the Ballot.

The following sixteen gentlemen were elected Ordinary Members of the Union:—J. W. Bertram-Jones, Josias Cunningham, Benjamin G. Lampard-Vachell, J. M. D. Mackenzie, Herbert T. Malcomson, Capt. Edward H. Mann, M.C., R.H.A., A. C. Nicholl, Gregory T. Poliakov, Colonel Rullion H. Rattray, William Raw, R.N.V.R., Capt. John Sherard Reeve, Sydney Maddock Robinson, Capt. Wm. Shipton, M.B., B.C., R.A.M.C., Capt. Hugh Frederic Stoneham, Godfrey Webster, and Charles E. M. Woodford.

Frank Michler Chapman, a Foreign Member of the Union, was elected an Honorary Member.

Dr. Eduard Daniel van Oort, an Ordinary Member of the Union, was elected a Foreign Member.

Prof. Dr. Louis Brasil was also elected a Foreign Member.

A revised copy of the Rules of the Union with various additions and amendments, which had been drafted by the Committee, was then submitted and discussed.

A proposal to admit proxies in voting for the election of Members, was rejected on the motion of Mr. G. H. Lings, seconded by Mr. R. W. Chase; but Mr. Elwes gave notice that he would like this decision to be reconsidered at the next Annual Meeting.

An amendment to allow Members, removed from the Union under Rule 7, to make an appeal to the whole body of Members at a Meeting specially convened for that purpose, was rejected on the proposal of Mr. G. B. Hony, seconded by Mr. P. A. Buxton.

A resolution proposed by Colonel H. W. Feilden and seconded by Mr. A. Trevor-Battye, that the office of Vice-President of the Union be created, was not carried.

Other amendments, chiefly verbal and explanatory, having been passed, it was resolved on the motion of Mr. R. W. Chase that the Rules as amended should be printed and circulated.

The following resolution was proposed by the Committee:—

> That the Sub-Committee who edited the new edition of the B. O. U. List of British Birds be reappointed, with power to add to their number, to make the necessary additions and corrections that from time to time may be necessary to the list and to publish them in 'The Ibis.'

This was carried unanimously.

Captain H. S. Gladstone proposed and Mr. Ezra seconded a vote of thanks to the Auditor, Mr. H. Munt. This was duly carried.

Mr. E. Bidwell proposed and the Rev. F. C. R. Jourdain seconded a vote of thanks to the Zoological Society for the use of their offices and rooms during the past year. This was carried unanimously.

Mr. Elwes moved that a vote of thanks be accorded to the Chairman. This was seconded by Mr. Meade-Waldo and carried.

The Selous Memorial.

At the January Meeting of the British Ornithologists' Club a proposal was brought forward by Mr. H. J. Elwes that the Club and the Union should take steps to show their appreciation of the late Capt. F. C. Selous's work and character by establishing some sort of permanent memorial to him, and he further suggested that it appeared to him that the most suitable form which the memorial should take would be a mural tablet of some kind to be placed in the Central Hall of the Natural History Museum, or alternatively or in addition the institution of a Selous Medal to be awarded from time to time to such persons as had distinguished themselves as field-ornithologists. It was subsequently resolved that Mr. Elwes and Mr. Stuart Baker should be appointed to arrange the matter and to discuss it with representatives of such other scientific societies as were interested in the career of Capt. Selous.

A strong Committee has now been formed containing representatives of such bodies as the Royal Geographical, the Zoological, and other Societies, as well as Mr. Elwes and Mr. Stuart Baker who have been asked to act as Chairman and Secretary respectively of the Executive Committee.

We understand that the Committee have already approved of the suggestion of the erection of a mural tablet in the Museum and that arrangements are being made to collect subscriptions to carry this into effect.

It is further proposed that the matter of the Selous Medal shall be left to be dealt with by the Committee of the B.O.U., and a definite decision on the matter will shortly be taken and reported on in the next number of 'The Ibis.'

THE IBIS.

TENTH SERIES.

Vol. V. No. 3. JULY 1917.

XVII.—*Notes on the Ornithology of Malta.*

By G. Despott, M.B.O.U.

Introduction.

The Maltese islands are situated at a distance of about 60 miles to the south of Sicily and 180 miles to the north of Africa. They consist of a group of small islands running from north-west to south-east for a distance of 29 miles.

Malta, which is the largest island of the group, is 17½ miles long and 8¼ miles broad, covering an area of 95 square miles; in shape it is an irregular oval, having the aspect of an inclined plane, rising abruptly from the sea on the south and gradually sinking into the waters towards the north and east. Here the coast is deeply indented with several fine bays and good harbours; on the southern precipitous part, however, no landing can be effected except at two or three very restricted points, which can be approached only in very small crafts.

Gozo comes next in size to Malta, and lies to the north-west of it; its length is 8¾ miles, its breadth 4½, occupying an area of 20 square miles. The coast of this island is in elevation much more irregular than that of Malta, as sloping land often interrupts the precipitously rising coast. The island has no real harbour, and with the exception of the inlets of Migiarro, Mgar, Xini, Xlendi, and Duejra on the south and west, and Marsalforno facing the north, the others are nothing more than very open bays.

Between Malta and Gozo lies the little island of Comino, at a distance of about half a mile from the latter and one mile or so from the former; it occupies an area of only one square mile.

Cominotto is only divided by a few yards' stretch of water from Comino, and Filfla lies at a distance of three miles off the south coast of Malta. Both these two islets may be practically considered nothing more than mere rocks; the second, however, is of some importance to the ornithologist, it being the chief breeding-station of our Shearwaters and Petrels, which a few years ago literally swarmed over this rock.

Besides the islets just mentioned, several other minor ones are scattered around the coast of both Malta and Gozo, but these are of no importance whatever from an ornithological point of view.

The climate of Malta is assuredly healthy, and though hot in summer is by no means tropical, as it has at times been stated; the winter can be compared to one of the milder northern springs.

No river, lake, or, in fact, any perennial water is to be found in these islands; consequently, no exuberant vegetation is to be observed. In consequence of this, and having moreover hundreds of guns and nets ever ready for any migrants, it is only natural that very few birds would consent to make these islands their home.

The chief trees met with here are the carob, fig, almond pomegranate, olive, orange, lemon, and Japanese medlar; prickly pears are also abundant. The carob trees are usually selected by our few breeding Warblers wherein to construct their nest, though some of these build also in several of the smaller trees. The Woodchat also seems to prefer the carob, though Schembri states that it builds in the almond tree.

The precipitous cliffs of both islands still afford shelter to some Gulls, Shearwaters, Blue Rock-Thrushes, and a few Jackdaws and Rock-Pigeons, and every now and then a pair of Barn-Owls manage to lay in one of the thousand crannies of these cliffs ; but the poor birds are very seldom fortunate enough to see their progeny fly.

There is some marshy ground at the head of the bays of St. Paul and Mellcha—it is, however, under cultivation ; this tract, known locally by the name "Il Ghadira," is still frequented by Waders and other migratory water-birds. A good extent of such ground existed at the head of the Grand harbour, but this has long been drained, and where once Waders abounded, the members of the military and naval forces now flock to play football, cricket, polo, and other games.

The fish-ponds of Marsascirocco and Marsascala, and the salt-pans at the Salina are also favourable resorts of Waders and water-loving species ; here, however, the sportsman is always posted and ever on the alert.

Considering the war waged against the feathered creatures, it will be seen that the list of the birds recorded is relatively rich.

The study of our ornithology has not been neglected, and this will also be subsequently seen.

Of local collections we have a pretty good number, and although some may have little or no scientific merit, a list of them may be interesting. The best are the following :—

(1) The University's, at Valletta. This contains a good number of species ; the older specimens are, however, not very well preserved, and the most interesting ones generally bear no date or locality.

(2) Col. Francia's, at Casal Lia. This collection contains a fairly good number of specimens, including several interesting and rare species, which are accompanied by the necessary data.

(3) Schembri's, at San Giorgio a Mare. This most interesting collection, made by the man whom we may call the father of Maltese ornithology, is unfortunately in a very

sad condition, and it is feared that the majority of specimens may be considered a total loss.

(4) Mr. C. Zammit Gauci's, at Casal Zebbug, contains also a good number of specimens, all of which have been taken and mounted by the collector himself.

(5) Mr. G. Dimech's, also at Casal Zebbug, contains specimens taken and mounted by the collector and his father, Mr. R. Dimech.

(6) Mr. G. Saliba's, at Rabato Gozo, is a small collection; it contains, however, the first example taken in Malta of the Black-bellied Sand-Grouse.

(7) Prof. Dr. E. C. Vassallo's, at Valletta, contains a number of interesting and rare species, mostly taken by Dr. Vassallo himself, and about which the Professor has some very interesting notes.

(8) Mr. A. Grech Ellul's, at Birchircara, contains a good number of specimens, all of which were received in the flesh by their collector, who is one of our best professional taxidermists.

(9) Mr. G. Agius's, at Marsascirocco. This consists mostly of Waders and water-birds, shot by the collector, from the fish-ponds of Marsascala and Marsascirocco.

(10) Mr. A. Cachia Zammit's, at San Giorgio a Mare. This is one of the older collections, which is fortunately in a good state of preservation; it contains amongst other varieties one of the few Pelicans taken in the island, and perhaps some of the specimens recorded by Schembri in his list of 1843.

(11) My private collection, at Valletta, contains now over 250 species and nearly 1000 specimens, all of which were received in the flesh and mounted by my brother, Mr. A. Despott, and myself. Amongst the rare specimens I can mention a Baikal Teal, an Egyptian Goose, a Guillemot, a Red-throated Diver, two Little Auks, a Jay, and a Bifasciated Lark.

In addition to these collections there are those of local bird-stuffers; these are, of course, continually fluctuating in number, and, moreover, exotic species are very often introduced.

Mr. Micallef's collection was sold after his death, in 1913, and I am informed that a good part of it passed into the possession of Mr. A. Magri at Floriana.

To the student of our ornithology, visits to the Valletta Market may often prove profitable, especially during the spring and the autumn, when the poulterers' stalls are frequently stocked with many interesting species of migratory birds ; but, in order that one may form an adequate idea of what the status of bird-life is in Malta, it might well be stated that the number of licensed sportsmen who overrun the 117 square miles covered by these islands is over 1000, perhaps twice as many if we count the unlicensed ones, and to these may also be added another army of netters. All these are, of course, a great help to the collector and epicures, but not so much to our agriculturists, who unfortunately are very ignorant of the real economic value of birds.

The published literature on Maltese ornithology is as follows :—

1760. De Reville Godehen. "Sur le passage des Oiseaux de Malte," pub. in the Mém. de Mat. et de Phys. prés. à l'Acad. des Sc. de Paris, t. iii.—In this paper the author gives a list of the migratory birds observed by him during his stay in Malta.

1772. Abela Ciantar. 'Malta Illustrata.'—In this work the author gives a sort of an Ornithological Calendar, beginning from March and ending in February.

1841. Thompson, W. "Notice of migratory Birds which alighted on, or were seen from, H.M.S. 'Beacon,' Capt. Graves, on the passage from Malta to the Morea at the end of April 1841," Ann. Mag. Nat. Hist. (1) viii. pp. 125–129.—In this note the author mentions some migratory species observed by him during the cruise of H.M.S. 'Beacon.'

1843. Schembri, Antonio. 'Catalogo Ornitologico del gruppo di Malta.'—In this work, which is one of the best that has ever been published about the birds of Malta, the author enumerates 230 species, giving with each a short but very interesting note, together with the Latin, Italian, English, French, and Maltese names.

1843. Schembri, Antonio. 'Quadro geografico ornitologico.'—In this work the author gives in comparative columns the status of birds in Malta, Sicily, Rome, Tuscany, Liguria, Nice, and Gard.

1844. Strickland, H. E. "On *Thalassidroma melitensis*, Schembri, a supposed new species of Stormy Petrel," Ann. Mag. Nat. Hist. (1) xiv. pp. 348–9.—In this note the author shows that the *Thalassidroma melitensis* Schembri is nothing but the *Procellaria pelagica* of authors.

1850. Strickland, H. E. "On the occurrence of *Charadrius virginiacus*, Bork., at Malta," Ann. Mag. Nat. Hist. (2) v. pp. 40–42. —In this note a description is given of the specimen taken in the island.

1858-63. Gulia, Gavino. 'Repertorio di Storia Naturale.'—This work contains some interesting notes about a few of our birds.

1860. Medlycott, William C. B. 'Catalogue of the Birds of Malta.'—A list in which are enumerated practically the same species given by Schembri.

1862. Wright, C. A. "Lista di uccelli Maltesi," pub. in the 'Repertorio di Storia Naturale' of Dr. Gavino Gulia.

1863. Wright, C. A. "A visit to the islet of Filfla, on the south coast of Malta," 'Ibis,' 1863, pp. 435–440.—The author gives here an interesting account of his excursion to Filfla, and mentions the occurrence of *Puffinus anglorum*, *Puffinus cinereus*, and *Thalassidroma pelagica.*

1864. Wright, C. A. "List of the Birds observed in the islands of Malta and Gozo," 'Ibis,' 1864, pp. 42–73, 137–157.—In this list, the most accurate ever published on the birds of Malta, the author enumerates 253 species, giving with each a short note, the English, and in the majority of cases also the Maltese name.

1864. Sperling, R. M. "Some account of an Ornithologist's cruise in the Mediterranean," 'Ibis,' 1864, pp. 268–290.—In this note some of our migratory birds are mentioned.

1864. Wright, C. A. "Appendix to a list of Birds observed in the islands of Malta and Gozo," 'Ibis,' 1864, pp. 291–292.—In this appendix the author gives two new occurrences, and records other rare birds observed since the publication of his list.

1865. Wright, C. A. "Second Appendix to a list of Birds observed in the islands of Malta and Gozo," 'Ibis,' 1865, pp. 459–466.—New and rare occurrences are recorded in this note.

1866. Grant, William. "Birds found in Malta and Gozo, with their English, Maltese, and Latin names."—In this list, which is not very accurate, several species have been included which have no claim to figure amongst Maltese birds.

1869. Wright, C. A. "Third Appendix to a list of Birds observed in Malta and Gozo," 'Ibis,' 1869, pp. 245–256.—The author enumerates here eight additional species, and criticises very severely the catalogue compiled by Grant.

1870. Adams, A. L. 'Notes of a Naturalist in the Nile Valley and Malta.'—A very good picture of bird-life in Malta is given in this work.

1870. Wright, C. A. "Fourth Appendix to a list of Birds observed in Malta and Gozo," 'Ibis,' 1870, pp. 488–493.—In this note a new occurrence is recorded, besides that of several other rare birds.

1871–72. Salvadori, Tommaso. "Uccelli," in 'Fauna d'Italia,' parte ii. Vallardi, Milano.—In this work a reference is made to some of our birds, and the Maltese names are also given.

1874. Wright, C. A. "Fifth Appendix to a list of Birds observed in Malta and Gozo," Ibis, 1874, pp. 223–241.—Eleven additional species are recorded in this note.

1878. Barbaro, G. C. 'The Birds of Malta, with their systematic English and Italian names and seasons' (Malta).—In this list 270 species are enumerated, some of which, however, have no right whatever to figure amongst the Maltese birds.

1884. Becher, E. F. "Shearwaters on the rock of Filfla," 'Zoologist, (3) viii. pp. 467–468.—In this note, giving a short account of an excursion to Filfla, the author mentions *Puffinus kuhli*, *P. anglorum*, *Procellaria pelagica*, and *Columba livia*.

1886. Giglioli, Enrico H. 'Avifauna Italica, Elenco delle specie di Uccelli stazionarie o di passaggio in Italia, colla loro sinonimia volgare e con notizie piu specialmente intorno alle migrazioni ed alla nidificazione' (Firenze).—In this work reference is given to the Birds of Malta, and the Maltese name is given as well as those in other dialects.

1888. Castagna, P. P. 'It tair.'—A list of birds known under a Maltese name, included in 'Lis Storia ta Malta bil gzejjer tahha.'

1889-90. Gulia, Giovanni. 'Prontuario di Storia Naturale.'—Those birds only which have a local name figure in this work, and with each is given also the English, Latin, and Italian one, and, in several cases, the occurrence too.

1890. Galizia, G. S. "L'avvoltojo Grifone e sua cattura nell' Isola di Malta," pub. in 'Il Naturalista Maltese.'—In this note the author gives a description of the specimen preserved in the University Museum.

1890. Falzon, R. "Note Ornitologiche," pub. in 'Il Naturalista Maltese.'—In these notes the author records several rare birds observed by him in these islands. Amongst them he mentions *Alca torda*, *Corvus cornix*, *Athene noctua*, and *Lobipes hyperboreus*.

1891. GIGLIOLI, ENRICO HILLYER. 'Primo resoconto dei risultati dell' inchiesta ornithologica in Italia' (three volumes, Firenze).—In this work the author takes Malta as forming geographically a part of Italy, and includes many ornithological occurrences, giving the names in various dialects as well as in Maltese.

1892. TAGLIAFERRO, N. "On *Sula bassana* in Malta," pub. in the 'Mediterranean Naturalist.'—By this note the author records the occurrence of the Gannet in Malta.

1893. TAGLIAFERRO, N. "*Falco punicus* in Malta," 'Mediterranean Naturalist,' iii. p. 366.—The author records the nesting of this species in Gozo, and the addition of a young male bird to the collection of the University Museum.

1895. BLASIUS, R. "Ornis von Malta und Gozo und den umliegenden Inseln, mit Beiträgen aus den ornithologischen Berichten der Leuchtthurm-wachter von Dellimara und Giordan aus den Jahren 1886-94," 'Ornis,' Braunschweig, viii. pp. 139-211.—In this list, which enumerates 288 species, some very interesting notes are given; in some cases, however, the local name is somewhat defective.

1899. MACKAY, HUGH. "Ornithological notes from Malta," 'Zoologist,' (4) iii. pp. 254-258.—In this paper, in which no order is observed, several species of our birds are mentioned. In many cases, however, the observation seems to have been done rather superficially; in fact, some of our very common species figure as birds of rare occurrence, whilst others are included without sufficient evidence. Other statements are undoubtedly mistaken owing to wrong identification.

1905. GULIA, GIOVANNI. "Uccelli Migratori," pub. in the 'Guida Generale di Malta.'—This consists of a sort of a short calendar, giving the species of birds which are met with in these islands during each month.

1907. LEACH, C. 'Catalogue of the Collection of Birds of Malta belonging to the Museum of the University.'—The compiler of this list, who was at the time Curator of the Museum, enumerates 224 species, giving with each the Latin, English, Italian, and Maltese names. Some species, however, are included, which, though existing in the Museum, bear neither date nor locality and are very probably imported specimens.

1907. GIGLIOLI, ENRICO H. 'Avifauna Italica' (Firenze).—In this work the author gives several notes of species which have occurred in Malta. The Maltese name is also given with the majority; in several cases, however, this is not correct.

1909. CARUANA GATTO, ALFREDO. "Sulla straordinaria comparsa in Malta della *Loxia curvirostra*, L.," pub. in the 'Archivum Melitense.'—In this note the author records the occurrence of the Crossbill in Malta during the summer of 1909.

1910. Gulia, Giovanni. "Il calendario dèl Cacciatore Maltese," pub. in the 'Guida Generale di Malta.'–This is a practical guide for the Maltese sportsman, for whom it was especially intended by the author.

1913. Arrigoni degli Oddi, E. 'Elenco degli uccelli Italiani' (Roma).—Several notes about the occurrence of certain species in Malta are given in this list.

1913. Despott, G. "La Berta Maggiore del Mediterraneo, *Puffinus Kuhli*, Ciefa, una specie che si estingue," pub. in the 'Archivum Melitense.'—In this note the wanton destruction of Shearwaters in these islands is deplored.

1913. Despott, G. "Lista delle nuove specie di uccelli, &c." pub. in the 'Archivum Melitense.'—In this list 33 species are enumerated, the majority of which are recorded for the first time.

1914. Kennedy, J. R. "Baikal Teal (*Nettion formosum*)."—In a letter published in the 'Ibis' (p. 166) the writer gives an account of the specimen seen by him and taken in Malta on the 16th of April, 1913.

1914. Despott, G. "Oche lombardelle catturate nell' Isola di Malta il 7 Gennajo," pub. in 'La Tribuna Sport' (Napoli).—The capture of five specimens of the White-fronted Goose is reported in this note.

1914. Despott, G. "*Chenalopex ægyptiacus*, L.," pub. in 'La Tribuna Sport' (Napoli).—In this note the occurrence of this species in Malta is reported.

1914. Ghidini, Angelo. "L'alzavola asiatica (*Nettium formosum*, Georgi) nel bacino del Verbano," 'Rivista Italiana Orn.' iii. pp. 145–7.—Amongst several records of the species in Italy the author includes the occurrence in Malta on the 16th of April, 1913, and in a footnote the occurrence of the Egyptian Goose in our island is also reported.

1915. Despott, G. "A list of the Birds of Malta." Malta, 8vo.—In this list are enumerated 340 species; with each is given a short note, and, besides the Latin, the English, Italian, and Maltese names are given.

1915. Hony, G. B. "Bird-notes from the Mediterranean," 'Zoologist,' (4) xix. pp. 106–108.—In these notes a reference is made to Malta where, amongst other birds, the author states that he saw two Blackcaps during his short stay. This species being rather rare, its occurrence here is always worth recording.

1916. Despott, G. "The Breeding-birds of Malta," 'Zoologist,' (4) xx. pp. 161–181.—In this paper the species enumerated are thirty-two in number; with each a note about the breeding-habits, in these islands, is given.

1916. Despott, G. "i. Egyptian Nightjar. ii Black-bellied Sand-Grouse. iii. White Storks in Malta," 'Zoologist,' (4) xx. pp. 194,

231, 232.—These are three short notes recording the occurrence of these rare species in the Maltese islands.

1916. DESPOTT, G. "Ornithological report for the Maltese islands (July–Dec. 1915)," 'Zoologist,' (4) xx. pp. 378–388.—Amongst other occurrences are those of a Short-toed Eagle and a Peregrine Falcon.

1916. DESPOTT, G. "Ornithological report for the Maltese islands (Jan.–June 1916)," 'Zoologist,' (4) xx. pp. 441–452.—The most important occurrence noted is that of the Cream-coloured Courser which passed in relatively large numbers during this period.

1916. DESPOTT, G. "*Anser albifrons*," pub. in the 'Archivum Melitense.'—This is a detailed note about the occurrence of the five White-fronted Geese taken in 1914.

Note.—The local names for several of the new species have been given me by the Hon. Dr. Magro, Rector of the University, who is one of the most competent authorities and enthusiastic students of the Maltese dialect; and for the majority of species the name given is a translation or the equivalent of either the Latin, English, or Italian names.

The number in brackets given with each species refers to that in my 'List of the Birds of Malta,' published in 1915.

Systematic List.

1. (143) **Corvus corax corax** L. The Raven.

Local name: *Ciaulun.*

The only specimen I have seen in the flesh was taken in the vicinity of Gargur on the 29th of November, 1906, and Mr. Micallef, to whom it was sent to be mounted, then assured me that it was the fifth specimen which he had handled—the other four having occurred also in the autumn in different years. Another local name for this species is *Corvu*: this appears, however, not to be much in use.

2. (144) **Corvus corax tingitanus** Irby. Irby's Raven.

Local name: *Ciaulun Ta Barbarja.*

On the 12th of May, 1912, Mr. Micallef showed me two of these birds which were taken in the vicinity of Krendi five days before; he also told me that these birds are rare and irregular visitors to these islands, but from his experience he considered them of a more frequent occurrence than the preceding. The above-mentioned specimens are, however, the only ones which I have seen. The local name was given me by Mr. Micallef.

3. (142) **Corvus cornix cornix** L. The Hooded Crow.
Local name: *Ciaula griza.*

A very rare straggler. The first mention of the species appears to have been made by my friend Prof. R. Falzon, in 1890. I know of three other specimens taken in these islands: the first was killed in the vicinity of Notabile and was stuffed by Mr. Micallef, who sold it to a local collector; the second I found in the Valletta Market on the 8th of April, 1914, this was shot in Gozo the day before and now forms part of my collection; the third is the specimen preserved in the University Museum, which, though bearing neither date nor locality, is said to have been taken in these islands. In spite of its rarity, it is said that in some parts of Sicily this species is known by the name of "Maltese Crow." The local name given is nothing but a translation of the Italian name, and by it the bird is known to local collectors and ornithologists.

4. (145) **Corvus frugilegus frugilegus** L. The Rook.
Local name: *Corvu.*

A rare visitor, generally seen during the autumn, though I have seen it more than once also during the spring. According to Schembri, it occurs on passage in October and November, generally arriving in flocks of five or six individuals. Wright records the species as very common during the winters of 1861–62 and 1862–63, when he says it remained with us for several months; he observed it also at the beginning of spring in 1864. I saw three individuals on the 11th of April, 1916, and Capt. Scott Hopkins reported to me three others observed by him on the 6th of the following May in the vicinity of Hagiar Kim. Besides the local name above given, *Ciaulun* and *Gharab* are to be found also on other lists; the first, as we have seen, however, is also given to the Raven, and the second is undoubtedly very little in use.

5. (141) **Colœus monedula monedula** (L.). The Jackdaw.

Local name: *Ciaula.*

This species was very abundant, but owing to a continuous persecution has become very scarce—so much so, in fact, that its temporary protection has been felt necessary. The few birds which remain breed in the inaccessible cliffs on the south of the islands, a few may also be seen about the precipitous rocks near Melliha and St. Paul's Bay. When Wright published his list of the birds observed by him in these islands, the Jackdaw appears to have been on the increase. I quite remember the time when these birds could be observed over the roofs of houses in the very centre of Valletta, and Adams says that the Jackdaw used to breed in the fortifications of the town. Wright says that it is asserted somewhere that the Jackdaw was imported by the Knights of St. John, but this statement seemed to him rather apocryphal. After careful observations, however, I came to the conclusion that new arrivals of these birds are never observed in these islands, so that what seemed apocryphal to Wright might be a real fact. In an old manuscript in the Malta Public Library, it is said that a reward was offered by the Government of the Order for the head and pair of feet of this bird, and to-day it is quite difficult to obtain a specimen, even if one offers a shilling or two. Another local name for this species is *Cola,* which is, however, practically out of use.

6. (140) **Pica pica pica** (L.). The Magpie.

Local name: *Ciaula bajda.*

Schembri records a specimen shot in these islands on the 7th of October, 1839, and Wright records the same occurrence, saying that the individual might have been a straggler blown off the coast of Sicily, where the species exists in great numbers. There is a specimen in the University Museum which bears no date or locality, but on which may be observed evident signs of captivity, so that if the specimen in question is the one recorded by Schembri, the occurrence is much in need of further evidence. It is to be further noted that these birds are at times imported from Sicily and sold to local bird-fanciers, so that if even an individual is taken careful enquiries should be made before recording it as a locally occurring bird.

7. (139) **Garrulus glandarius glandarius** (L.). The Jay.

Local name: *Sultan icciaul.*

In my list of the birds of Malta of 1915, I gave this species as one of doubtful occurrence, saying that the only specimen existing in Malta is the one in the University Museum, and that this, like many of the older specimens, though stated to have been locally taken, bears neither locality nor date. On the 10th of May, 1916, however, I found a specimen in the Valletta Market; it was obtained the day before from the limits of Casal Zabbar. The example was in very good condition, not bearing the slightest sign of having been kept in confinement; it now forms part of my collection, and I consider it a genuine locally occurring bird. The Maltese name above given has been suggested by my lamented friend the late Prof. Tagliaferro, and has already been accepted by those interested in our ornithology.

8. (136) **Sturnus vulgaris vulgaris** L. The Starling.

Local name: *Sturnell.*

Occurs in fairly large numbers on migration during the autumn, the first arrivals are generally observed about the end of September; the bulk of the birds, however, are never noticed before the middle of October, when large flocks are usually noticed coming in about sunset. Both gun and net, unfortunately, await the poor migrants, and in a short time their numbers are markedly reduced. The few individuals which find sanctuary in our public gardens, and thus escape destruction, linger here until the beginning of spring, when they depart. I have a specimen in my collection taken on the 26th of May, 1913—an exceptionally late date for the occurrence of the Starling in Malta. I have been assured that several females, on dissection, were found to contain ovaries in such an advanced state that in a short time they would undoubtedly have laid; in spite of this, however, I have no difficulty in saying that we have not yet any authentic record of the breeding of the species with us. According to Schembri, new arrivals of the Starling are noticed in March; I believe, however, that these are only some of those which have wintered with us.

9. (137) **Sturnus unicolor** Temm. The Sardinian Starling.
Local name: *Sturnell iswed.*

A very rare visitor, first reported by Schembri, who states that two specimens were shot from a flock of five or six by Mr. B. Ellul. Wright also records several locally taken specimens. I have seen three stuffed specimens in Mr. Micallef's collection, and another one in the University Museum—this bears neither date nor locality. The three in Mr. Micallef's collection were taken in October and handled by him in the flesh. In the autumn of 1907, I observed two of these birds together with the Common Starling, and another on the 5th of November, 1911; a specimen was shot in the neighbourhood of Birzebbugia in the summer of 1916—this was preserved by a local bird-stuffer. To the majority of bird-dealers and poulterers, the species is known by the name above given. All, however, admit its rarity, and I have not yet succeeded in procuring a specimen for my collection, though I have done my very best.

10. (138) **Pastor roseus** (L.). The Rose-coloured Pastor.
Local name: *Sturnell rosa.*

A rather rare and irregular visitor. Schembri records the occurrence of five individuals: the first was seen by him at Bingemma in August 1835, the second in 1840, the third was taken in the nets in 1841, and another two observed also by him near St. Paul's Bay in the spring of 1842. Wright records four individuals: the first was killed on the 7th of August, 1855, two were taken at the Marsa (for these no date is given), and the fourth was purchased by him in the Valletta Market during the first week of November, 1858. I have seen only one live specimen, and this was at "Tal Ghalia" on the 1st of November, 1906. There is a fine specimen in the University Museum—this, however, bears neither date nor locality; and I know of another in the collection of Mr. Micallef, who informed me that it was the sixth specimen which he had prepared. A specimen was taken in the vicinity of Birzebbugia in the middle of July, 1916. The local name *Malvizz rosa*, given in other lists, is not used any longer, and I do not know if it has ever been in use.

11. (75) **Oriolus oriolus oriolus** (L.). The Golden Oriole.
Local name: *Tajra safra.*

A regular migrant during the spring and autumn. It is abundant, however, during the former season and in the latter it is usually scarce. During the spring the first arrivals are noticed by the middle or end of March; the bulk, however, are not observed before April, when it is a common occurrence to see the carob trees quite full with these birds, and when great slaughter is wrought by sportsmen, both licensed and unlicensed ones. Some of these birds usually linger here till the end of May, and a few individuals occasionally prolong their stay till the middle of June. I remember years when the Orioles appeared in very small numbers; this is, however, only an exception to the rule. Both Schembri and Wright are of opinion that these birds would breed here if they were not so much persecuted. And I quite share this opinion, for I have often dissected females in which the ovaries were so ripe that in a few days the birds would undoubtedly have laid. Besides the local name above given, we find in other lists the name *Tajra hadra*, which is said to be used for the female and young birds; this is, however, not much in use at present, and the name

Tajra safra is given indiscriminately to both the males, females, and young.

12. (109) **Coccothraustes coccothraustes coccothraustes** (L.). The Hawfinch.

Local name : *Ghasfur taz-zebbug.*

Both Schembri and Wright say that this species occurs on migration in November and December, and is common in some years and rare in others. From my personal experience I can say that it is to be considered as a rare bird, and that it is only in an exceptional way when it does occur in any considerable numbers. When this happens, the first arrivals are noticed by the third or last week of October, and when the birds are not seen at that time they are generally not expected to pass at all. In 1907 and 1909 we had an exceptionally abundant passage of Hawfinches, and in 1909 especially, flocks composed of ten or more individuals were by no means a rare sight; during that year the first arrivals were observed on the 17th of October, and I have then seen one taken as late as the end of March. In 1907 I noted the first arrivals by the first week of October; the birds, however, did not seem to linger here for more than two months.

13. (98) **Chloris chloris chloris** (L.). The Greenfinch.

Local name : *Verdun.*

Pretty common and arriving in tolerably large numbers during some years, becoming scarce, however, in others. The first arrivals are generally noticed by the middle of October; the bulk of the birds, however, are not observed before the end of this or the beginning of the following month. Solitary individuals are at times seen as early as the first days of October, but this is to be considered as quite unusual; the few individuals which escape the nets, set for them and for other Finches, usually stay here for the winter. In January fresh arrivals are often noticed; these, however, stay here for a rather short period and generally depart together with those which have passed the winter with us. In May 1910 I found a nest of the Greenfinch, and I have been assured that the case, though very rare, is by no means unique. Like all other finches the Greenfinch is severely persecuted, and, being a rather confident species, it is very difficult for it not to fall a victim to one of the numerous guns or nets.

14. (99) **Chloris chloris aurantiiventris** (Cab.). Algerian Greenfinch.

Local name : *Verdun second.*

No mention of this species is made by Schembri, and Wright says he has never met with it here. I have seen two or three locally taken specimens, but, not knowing at the time that they belonged to a distinct variety, did not trouble to preserve them. I have been assured by several netters and fowlers that these birds are more frequent than I imagined, and that they are distinguished from the Common Greenfinch by the local name given above. The last specimen which I have seen was taken within the limits of Zurrico by my friend, Giuseppe Vella of that village, on the 12th of November, 1911 ; it lived for two years in confinement and was crossed with a Canary in the spring of 1912.

15. (93) **Carduelis carduelis carduelis** (L.). The Goldfinch.

Local name : *Gardill.*

Schembri gives this species as rather common and occurring on migration in April and May ; he also states that in his time it was beginning to be here a pretty frequent breeder too. Wright also repeats this last statement, saying, however, that the species is not very common, and that it occurs in October and again in April and May. From my own observations I can say that the Goldfinch is a very scarce migrant during the autumn, sometimes occurring also during the spring ; on exceptional occasions it has been known to arrive in fairly good numbers, but these cases are to be considered very rare—the only case in my memory when this happened was in October 1908. The occurrence of the species in spring is, in my opinion, also quite exceptional ; when they do arrive, however, during that season, if left undisturbed, they generally breed with us

16. (94) **Carduelis carduelis major** (Tacz.). The Eastern Goldfinch.

Local name: *Gardill ta Costantinopli.*

This Goldfinch is often imported to Malta, so that specimens which are at times taken might easily be individuals escaped from captivity; but as I have seen two examples obtained during the migration season in a good state of plumage, quite incompatible with specimens which had been kept in confinement, I give the species a place on the list of the birds of Malta, adding, however, that further evidence is desirable. Bird-catchers and dealers assure me that they have met with the species several times and that they know it by the local name given above.

17. (95) **Carduelis spinus** (L.). The Siskin.

Local name: *Ecora.*

It may be said that a few specimens occur annually; during some years, however, the species is known to arrive in pretty good numbers. Schembri says that it is here asserted that this takes place almost periodically every seven years. I remember several seasons when not a specimen could be observed; when it does occur it is generally seen by the end of October, it becomes more common in November, and in winter it usually disappears. I know two occasions when the species was observed at the beginning of spring; this, however, is undoubtedly quite exceptional.

18. (110) **Carduelis linaria linaria** (L.). The Mealy Redpole.

Local name: *Giojjin salvagg.*

I only know of one specimen which was taken in Malta. It was brought to me by my friend G. Vella of Zurrico, who captured it within the limits of that village on the 20th of October, 1909. The local name given is the one by which Vella called the bird, and I think it might well be kept for the species, as the word *salvagg* is often given to any rare congener of species which are common here.

19. **Carduelis linaria cabaret** (P. L. S. Müll.). The Lesser Redpole.

Local name: *Baghal tal giojjin.*

A specimen was taken in the vicinity of Zurrico on the 18th of November, 1916; it was brought over to Giulio Mallia, one of the bird-dealers in St. John's Square, and it was sold by him to a bird-fancier from Marsa; the bird was quite unknown to all the dealers present, and was soon given the name of *Baghal tal giojjin.* The name *Baghal* is also usually given to any rare species which occurs for the first time. The Lesser Redpole has not been recorded further south than Sicily, and in that island the occurrence appears to be also unique.

20. (109) **Carduelis cannabina cannabina** (L.). The Linnet.

Local name: *Giojjin.*

Very common on migration in the autumn. The first arrivals are generally noticed by the middle of October; the bulk of the birds, however, are never observed before the beginning of the following month. By the middle of November our valleys are quite full of Linnets, but the greater part are wantonly taken by both the clap and the bat net; the greatest destruction is, however, wrought by means of this last instrument, the poor birds being caught in hundreds of dozens, to appear the next morning on the stalls at the Valletta Market and sold as *beccafichi*, or are more quickly consigned to the pot of the netters themselves. When the number of these birds has been brought down considerably and it is considered no longer worth while to use the bat-net, the few birds which are left usually linger throughout the winter and for a greater part of the spring, when they occasionally breed with us. The local name *Giojjin tal warda*, given by Giglioli, is intended for the male in full plumage; it is, however, not much in use. Another local name given to adult specimens is *Giojjin ta l'erba bianca,* but this also appears to be dying out.

21. (96) **Serinus canarius serinus** L. The Serin.

Local name : *Apparell.*

During some years this bird is as common as the Linnet, though it generally arrives at a later date. When a chance is given to it we find it lingering throughout the winter and for a good part of the spring ; but unhappily, like the Linnet, it is also subjected to persecution and is wantonly destroyed by both the clap and the bat nets. Of the countless numbers of these birds which arrive annually, not one in a thousand survives till the following summer ; it is even said that many persons earn a living by the capture of these birds ! The Serin has been known to nest here when fortune protects it, and it would assuredly be a more frequent breeder if it were not persecuted to such an extent.

22. (97) **Serinus canarius canarius** (L.). The Wild Canary.

Local name : *Canal salvagg.*

On the 25th of January, 1896, a husbandman from Zurrico, M. A. Callus by name, whilst netting for Serins at Hal Far, captured two of these birds ; they soon excited the curiosity of all who saw them, and, as is generally the case in Malta, were taken to be a cross between the Serin and some other Finch. I was told, however, that a gentleman of the village, after consulting some books, declared the birds to be Wild Canaries, and they were consequently given the name *Canal salvagg*, which is nothing but a translation of the English and Italian name. In 1911 I asked Callus and another man who saw the specimens, several questions regarding them, and showed them pictures of several Finches, and they both of them agreed that the picture of the Wild Canary represented the specimens seen by them. For these reasons I have included the species amongst our avifauna, not pretending, however, that further evidence is not also desired. The local name *Canal salvagg* appears on other lists for other species ; it cannot stand, however, better than for this bird, knowing, moreover, that the other species have also other and much better names too. In Giglioli's list this species has been reported as forming one of Italy's rare visitors, but in the 'Elenco degli Uccelli Italiani' of Count Dr. E. Arrigoni degli Oddi, published in 1913, it is reported among the species erroneously included in the Italian list.

23. (113) **Pyrrhula pyrrhula europæa** Vieill. The Bullfinch.

Local name: *Bugheddum.*

The occurrence of this species is quite accidental. Schembri records one captured within the limits of Zurrico in February 1840 and two shot by Mr. Ellul in March 1835. Wright reports also the same occurrences, adding, however, another one, which he says was taken some years afterwards. I have a pair in my collection which were taken within the limits of Zurrico on the 27th of November, 1909. In some other lists the local name for this species appears as *Durrajsa hamra* (Red Bunting); the one above given and which I have taken from Mr. Micallef is, however, more to the point; moreover *Durrajsa hamra* is better suited, as suggested by the Hon. Dr. Magro, to *Emberiza aureola.*

24. (114) **Pyrrhula pyrrhula pyrrhula** (L.). The Northern Bullfinch.

Local name: *Bugheddum pruim.*

Two specimens were taken by Rocco Schembri (Tal Pivri) whilst netting for Sparrows in the neighbourhood of Zurrico on the 20th of August, 1909, and another by Rosario Psaila (Tal Ghaccari) from Binghisa in November of the same year. The specimens taken by Schembri lived for more than a year in confinement, the one taken by Psaila died after a few days. Of these two occurrences only the last is mentioned in my list of 1915, the other, by an oversight, has been left out; it figures, however, in my list of new additions to our avifauna, published in the 'Archivum Melitense' of 1913. The local name has been suggested by the Hon. Dr. Magro.

25. (111) **Carpodacus erythrinus erythrinus** (Pall.). The Scarlet Bullfinch.

Local name: *Bumunkar.*

According to Wright, *Fringilla incerta,* of which Schembri records the capture of two specimens on the 25th of December, 1839, is now recognised to be the young of this species. Giglioli also says that the species has occurred in Malta, perhaps alluding to the specimens mentioned above. Another specimen was obtained near Zurrico by M. A. Callus, in the autumn of 1910. The local name, which is practically a translation of Grosbeak, was picked up from an old sportsman by the late Prof. Tagliaferro—besides this, however, there is also another local name, *Tusurier* ; it appears, however, that the species is very little known either by this or by the other name, so that if one of these is to be chosen, the one which is a translation of Grosbeak is, in my opinion, to be preferred.

26. (112) **Erythrospiza githaginea githaginea** (Licht.). The Desert Bullfinch.

Local name: *Trumbettier.*

Schembri says that some of these birds, which he considers rare, occur almost annually from December to March, and Wright, who is practically of the same opinion, records the capture of two specimens—one during the last week of October 1860, the other in November 1862. In his fourth appendix to the list of birds observed in Malta and Gozo, he says that several birds of this species were taken during the summer of 1869, and another was detected by him amongst the Finches in the market during the month of October. I have seen several specimens and, with the exception of one which was taken in May, all the others occurred during the summer months. I have asked several sportsmen and netters the month in which this species usually visits us, and all of them agree that this generally happens in July and August and very rarely, if ever, during the otner months. The local name given is a translation of the Italian, and this is evidently taken, as Wright says, from the note of the bird, which is very like the sound produced by a penny trumpet. I have a live specimen in my possession which I succeeded in crossing with a hen canary, the offspring being in shape and colour like the cock bird—in size, however, they are markedly less.

27. (115) **Loxia curvirostra curvirostra** L. The Common Crossbill.

Local name: *Mkass.*

A quite accidental and very irregular visitor to these islands. Schembri says that it occurs only at rare intervals, and this usually happens in September; he also states that he had seen more than ten individuals between 1838 and 1843. Wright is practically of the same opinion as regards the occurrence of the species, and records the capture of two specimens, one in October 1861 and the other in October 1863. A rather plentiful passage of Crossbills occurred on the 7th of July, 1909, and many of the birds continued to be captured during the following two months. In the second week of July 1916 we had another small passage of the species, and a few specimens have been taken too. The majority of the specimens which are seen in local collections are, however, those which were taken in the summer of 1909. Another local name for this bird is *Crocier*, which is a corruption of the Italian *crociere*, but this is apparently in very little use; in some lists we also find the bird called *Ortulan gheddumu imsallab*—I do not know, however, if this name was ever used.

28. (106) **Fringilla cœlebs cœlebs** L. The Chaffinch.

Local name: *Sponsun.*

A bird of regular passage during the autumn, generally occurring in fairly good numbers during some years—it becomes scarce, however, in others. I remember two seasons when these birds could be considered rarities. The first arrivals are usually noticed by the last week of October, the bulk of the birds, however, are never seen before the first days of the following month. Both Schembri and Wright say that the Chaffinches which arrive here in October remain for the winter; from my personal observations, however, I can say that such is the persecution these birds are subjected to, that very few chances are given them for wintering here. The local name *Sponsoun*, given by Giglioli, is evidently a misprint.

29. (107) **Fringilla cœlebs spodiogenys** Bp. The Algerian Chaffinch.

Local name: *Sponsun abjad*.

Wright says that he never met with this form of the Chaffinch in Malta. I saw two specimens on the 29th of October, 1908; these were taken in the vicinity of Casal Axiak by a country lad, nick-named "Taz-zaram." Two days later I was fortunate enough to capture a specimen myself, so I no longer hesitate to admit the species to our list. During the summer of 1911 another of these birds was taken by a man who was netting for Sparrows; knowing, however, that during that summer several of these Chaffinches had been imported from the north coast of Africa, I cannot give the occurrence except as doubtful. The local name *Sponsun abjad* has been obtained from the dealers on St. John's Square (Valletta).

30. **Fringilla montifringilla** L. The Brambling.

Local name: *Sponsun salvagg*.

Schembri says that this species, which is not common, arrives here in October, and Wright, who considers it rather rare, says that a few are taken nearly every year. From my own experience I cannot but call these birds rare. The specimens I have seen were always taken during the autumn, but their passage by no means appears to be an annual occurrence. I have seen a specimen in the possession of Lorenzo Calleja which was a cross between this and the Common Chaffinch.

31. (103) **Passer montanus montanus** (L.). The Tree-Sparrow.

Local name: *Ghasfur tal bejt tas-sigiar*.

Schembri says that this species is rather rare, and it is generally confused with the Italian and Spanish Sparrows. Wright, however, says that he knew only one specimen taken in these islands and that it was in the collection of Schembri, who had asked him to correct the error he fell into when he said that this Sparrow bred in Malta. In October 1912, the species occurred in fairly good numbers—I obtained two specimens from Pietro Darmanin (Tal melh), a husbandman from Zurrico, who captured five individuals in the neighbourhood of his village. Besides these, I saw another pair which were taken in my presence from a flock of five or six by Mr. Conti, who was netting for Finches at Wied il Koton in November of the same year. Mr. Micallef took nine or ten other specimens during that season, and the specimen in the University Museum is one of these. The local name given above, though rather long, is practically a translation of the English "Tree-Sparrow," and is certainly more correct than the local name given by Giglioli—*Ghasfur tal bejt abjad*, which means White Sparrow.

32. (101) **Passer italiæ italiæ** (Vieill.). The Italian Sparrow.

Local name: *Ghasfur tal bejt second.*

There appears to be some confusion about this species in both Schembri's and Wright's notes. I have no doubt, however, that the species, though rare, does really occur. It has been met with at least twice. The first time a specimen was taken by Lorenzo Calleja in the spring of 1909; this was given to me and lived for several years in confinement, when it easily crossed with the Spanish Sparrow. The second time it was reported to me by my friend Mr. Jos. Zammit, who captured a specimen in June 1916. In the 'Catalogue of the Collection of the Birds of Malta' the local name for this species is *Ghasfur tal bejt iswed*, which means Black Sparrow; this, of course, is not at all befitting, as the Italian Sparrow is in no way black. The name which I have selected has been suggested by the Hon. Prof. Magro.

33. (102) **Passer hispaniolensis maltæ** Hart. Sicilian Sparrow.

Local name: *Ghasfur tal bejt.*

As is the case with many other countries, the Sparrow was once so abundant that it was considered a nuisance, but now, and it sounds almost incredible, it has become, at least in some localities, rather scarce. Our farmers, sportsmen, and netters have succeeded in bringing down its numbers so low that it was felt necessary that a temporary protection should be afforded to it. A few years ago Sparrows could be observed in countless numbers, even in Valletta; to-day, however, one might traverse a good tract of the island without meeting with, say, a dozen of these birds.

34. (104) **Petronia petronia petronia** (L.). The Rock-Sparrow.

Local name: *Ghasfur tal bejt salvagg.*

Casual and very rare. Recorded first by Schembri, who says that a specimen in his collection was captured in the spring of 1839. Wright also records one in his collection which was captured alive on the 23rd of November, 1862, and another in the possession of Dr. Gulia captured also alive in February 1864. In the fourth appendix to his list, Wright records an unusually numerous passage of these birds, which took place in the autumn of 1869, when a good many were taken by both net and gun.

I had a pair which were shot at Ghar Kirdua on the 27th of September, 1905, and I saw another exposed for sale, together with the Common Sparrow, on the 7th of January, 1912. The first two specimens I did not preserve, as I had not yet commenced collecting; for the third I could not trace the provenance, and as it had, moreover, evident signs of its having been kept in confinement, I thought it would be better not to admit it into my collection.

The local name appears on the list of Prof. Blasius, who perhaps borrowed it from Giglioli.

35. (105) **Gymnoris flavicollis flavicollis** (Frankl.). The Yellow-throated Sparrow.

Local name: *Ghasfur tal bejt sidirtus afra.*

I have a specimen in my collection which was given to me alive by my friend Mr. Jos. Zammit, who captured it in the neighbourhood of Krendi in November 1912. This specimen was in such a good condition of plumage that it could not possibly have escaped from captivity, and for this reason I had no hesitation in admitting it to our list. It lived for nearly two years in my possession, and it showed a marked seasonal change in its plumage. The local name which has been suggested by the Hon. Prof. Magro is practically, like the English, an equivalent of the Latin.

36. (116) **Emberiza calandra calandra** L. The Corn-Bunting.

Local name: *Durrajsa.*

This was once one of our more common resident and breeding species; owing, however, to a continuous persecution, especially during the breeding-season, it has shown a very marked decrease. Fresh arrivals from abroad appear to take place during both seasons, and these in some way serve to make up for the great destruction the poor birds are subjected to.

37. (119) **Emberiza citrinella citrinella** L. The Yellow Bunting.

Local name: *Durrajsa safra.*

In Giglioli's 'Avifauna Italica,' under this heading, the Maltese name *Karmec* is given with a query, and it appears that for this reason Blasius included the species in his list. Arrigoni also reported the species as of doubtful occurrence in these islands. On the 6th of November, 1910, however, I was fortunate enough to capture a male and a female, which now form part of my collection; and a few days later a friend of mine, Mr. Georgio Camilleri, captured another male. On the 30th of October, 1912, I captured another specimen in the neighbourhood of Birzebbugia, from which locality were also taken the above-mentioned ones. The local name given by Giglioli for this species is also given to one or two more of our birds;

the one which I have selected is a pure translation, like the English and Italian, and has already been taken up by all those interested in our birds.

38. (117) **Emberiza melanocephala** Scop. The Black-headed Bunting.

Local name: *Durrajsa rasha seuda.*

Only a straggler: reported first by Wright in the third appendix to his list of Maltese birds, where he says that a specimen was obtained in 1867 and was kept alive for some months; he also says that Drs. Gulia and Delicata mention having observed it. Giglioli states that the species is of accidental occurrence in Malta, referring perhaps to the statements given above; he also gives the local name, *Durrajsa rasha seuda.* In my list of 1915 I left out these occurrences, and simply recorded the specimen in my collection, which was taken at Zurrico on the 12th of October, 1912. There is a specimen in the University Museum, which is in a very bad condition; it bears neither date nor locality—from the style of its mounting, however, it might be the one recorded by Wright.

39. (118) **Emberiza aureola** Pall. The Yellow-breasted Bunting.

Local name: *Durrajsa hamra.*

A specimen was taken in the nets from the "Mghalak," a locality near Siggiewi, during the first week of January, 1913. It was purchased by Mr. Leach for the University Museum from Giulio Mallia, the bird-dealer on St. John's Square. The specimen was living at the University, until last April, and the skin is now preserved there. The local name indicates the reddish brown which is the general colour of the bird.

40. (120) **Emberiza cirlus** L. The Cirl-Bunting.

Local name: *Ortulan iswed.*

A straggler: first recorded by Schembri, who saw a specimen taken at Zurrico on the 20th of November, 1839.

Wright records one which he says appeared to be a female, and which was captured on the 12th of November, 1862, and another obtained by him which was captured alive in 1863. In the fourth appendix to his list he says that on the 10th and 11th of November, 1869, he picked up two males in the Valletta Market.

The only specimen which I have seen was captured within the limits of Zurrico in the autumn of 1911. There is also an example in the University Museum, which, like the majority of the older specimens, is in a pitiful condition and bears neither locality nor date. The local name is a translation of the Italian, which in my opinion is rather misleading, for the bird is not black at all (*Zigolo nero*=*Ortulan iswed*=Black Bunting).

41. (121) **Emberiza hortulana** L. The Ortolan Bunting.

Local name: *Ortulan.*

According to both Schembri and Wright this species occurs on passage during the spring and autumn, and, though I have often heard this stated by others in regard to the autumn, I have not yet been able to observe it myself. I consider these birds as regular spring migrants, which are fairly common in some years, while in others very scarce.

42. (124) **Emberiza cia cia** L. The Meadow-Bunting.

Local name: *Ortulan salvagg.*

Very rare. First recorded by Schembri, who states he saw two individuals in December 1841. Wright records another taken alive in January 1863. I obtained a pair, captured alive, within the limits of Zurrico on the 6th of November, 1912. One of these died a few days after its capture, and now forms part of my collection; the other lived till the 23rd of October, 1913. Both Schembri and Wright give *Canal salvagg* as the local name for this species. Giglioli and Blasius give also the one which I have selected and which I consider more to the point.

43. (122) **Emberiza rustica** Pall. The Rustic Bunting.

Local name: *Durrajsa salvaggia.*

I saw a mounted specimen some years ago in Mr. Micallef's collection, and I was assured by him that he received the bird in the flesh from a sportsman of Casal Gargur. The species figures also in the Catalogue of our birds in the University Museum, but no local name is given to it. The one given at the head of this note was proposed by Mr. Micallef, and I think it may be accepted, it being almost a translation of the Latin name.

44. (123) **Emberiza pusilla** Pall. The Little Bunting.

Local name: *Durrajsa kerknija.*

This species was reported for the first time amongst our avifauna by Wright, who records a specimen given to him by a bird-catcher on the 24th of October, 1873. I have seen only one specimen, which was taken alive by Rosario Psaila in the vicinity of Birzebbugia on the 29th of October, 1908. The local name for this Bunting has been suggested by the Hon. Prof. Magro, it being a translation of the Latin name.

45. (125) **Emberiza schœniclus schœniclus** (L.). The Reed-Bunting.

Local name: *Durrajsa seconda.*

First reported by Schembri, who says that the first specimen observed by him was taken on the 20th of November, 1839; it lived in confinement till the following March. According to Wright, it is one of the Buntings which only at rare intervals favour us with a visit; he records a specimen obtained by him on the 13th of November, 1860, and another on the 14th of November of the following year, also one netted 9th of December, 1871. On the 7th of November, 1910, I captured a male and a female in the neighbourhood of Birzebbugia, and another was taken at Binglusa by Giovanni Mizzi (Ta Matti) on the 10th of November, 1911. In the winter of 1913 my friend Dr. G. Zammit, of

Naxaro, sent to me a specimen which he shot at the Salina, this being the fourth specimen which I have seen in the flesh ; besides these, however, I have seen at least half-a-dozen stuffed specimens, all of which, I was assured, were taken in these islands. In Giglioli's and Blasius's lists the local name given for this species is *Ortulan tas' sidra*, which is certainly not in use at present; the one given above has been taken from two or three sportsmen who have seen the birds, and have also assured me they have met with the species before.

46. (126) **Plectrophenax nivalis** L. The Snow-Bunting.

Local name : *Durrajsa tal maltemp.*

Reported for the first time by Schembri, who records the capture of two specimens in the autumn of 1840. Wright mentions a male bird in full plumage, shot by him at the Salina on the 13th of November, 1869, and a pair, one of which he secured for his collection, killed about the end of December of the same year.

On the 28th of October, 1911, I was fortunate enough to find a specimen in the Valletta Market ; this, I was told, was taken in the neighbourhood of Rabato on the preceding day. The local name given is the one used by the majority of those interested in ornithology ; the one given by Giglioli is intended for an albino form of the Common Bunting, which was in the University Museum, and was labelled as a specimen of the Snow-Bunting. It may also be noted here that Giglioli puts an exclamation mark after, saying that he knew that the species had been taken in Malta.

47. (129) **Melanocorypha calandra calandra** (L.). The Calandra Lark.

Local name : *Calandra.*

According to both Schembri and Wright, this species occurs on passage during the spring and autumn. I have never met with it during the first-named season, when it is often imported from Sicily. During the autumn, however, it is frequently observed coming over with the first arrivals of the Sky-Lark. I cannot say that this is an annual occurrence—in fact, I remember several years when the species did not appear at all; and, though it is said that during some years these birds occur almost in considerable numbers, they are to be considered as generally scarce. I have a specimen in my collection, taken in the vicinity of Birzebbugia in the autumn of 1910, which appears to be very much larger than usual.

48. (129 *a*) **Melanocorypha sibirica** (Gm.). The White-winged Lark.

Local name: *Calandra salvaggia.*

Mr. Micallef mounted a specimen of this species which he bought alive from Giulio Mallia in 1904. The species figures also in the 'Catalogue of the Collection of the Birds of Malta': this is, however, due to an erroneous identification of a pied example of the Short-toed Lark. The local name given above is the one which Mr. Micallef has given to the above-mentioned specimen.

49. (133) **Calandrella brachydactyla brachydactyla** (Leisl.). The Short-toed Lark.

Local name: *Bilbla.*

Occurring in very large numbers during the spring and towards the end of summer. The first arrivals are generally noticed during the first days of March, and continue to arrive till the end of April or the beginning of May. Many of these Larks remain here to breed; nidification generally commences late in April and goes on till the end of July. The birds which arrive in September only linger here till the beginning of October, when, together with the locally-bred individuals, they depart. A curious fact pointed out by sportsmen and bird-catchers is that this species never meets the Sky-Lark: when one arrives, the other is already gone. Specimens are often seen which are of a particularly red colour; others, on the contrary, are very markedly light.

50. (134) **Calandrella minor minor** (Cab.). The Lesser Short-toed Lark.

Local name: *Bilbla seconda.*

In my list of the birds of Malta, published in 1915, I said that this species is rare but possibly unobserved, and that it also nests at times with us. In my paper on the breeding birds of Malta, published in the 'Zoologist' for May 1916, I said that the few individuals which arrive in April together with the foregoing species remain here to breed. As it seems that these statements of mine are not quite clear, I give the occurrences of the species as I have them on my note-book:—

(1) Two specimens mounted by Mr. Micallef, taken in May 1891. Mr. Micallef, who stuffed three other specimens of this species, told me that these birds occurred in fairly good numbers in 1897, and he also showed me several clutches of eggs taken during that season: these were identical with the clutch in my collection about whose authenticity I have not the slightest doubt.

(2) In 1907 I had three specimens of this species, one of which was brought to me together with a clutch of four eggs. Of these three birds, one died after a three days' confinement; the other two lived till the beginning of winter of the same year (dates of capture of these three specimens: May 14 and 21, and June 4—the last being the one which was brought to me together with the clutch).

(3) On the 4th of May, 1909, I found a specimen in the Valletta Market, and fourteen days later I saw another at Giulio Mallia's, the bird-dealer.

(4) On the 29th of April, 1911, a specimen was sent to me by my friend, G. Vella of Zurrico; it was captured by him on the 22nd of the same month.

Besides this, several netters and bird-dealers assure me that the species is more frequent than I imagined, and that they distinguish it from the common Short-toed Lark by the local name of *Bilbla seconda.*

A specimen in Dresser's collection, which was also examined by Giglioli, was taken in Malta.

51. (132) **Galerida cristata cristata** (L.). The Crested Lark.

Local name: *Ciuklajta tat-toppu.*

Schembri says "this species, which is the less common of the genus, arrives here in March and October, but not annually"; and Wright, in his list of 1864, says that the species is rare, but a few are sometimes taken in March and October; in the second appendix to his list, however, he says that he should have given Schembri as his authority for the above statement, and concludes by saying that though he had done his best he did not succeed in procuring a specimen. I have seen two examples which I was told were taken in Malta: the first was shown to me by Mr. Micallef, who obtained it in May about ten or eleven years ago; the second is the one which is preserved in the University Museum and which, like the majority of the older specimens, bears neither date nor locality.

Schembri gives simply *Ciuklajta* as the local name for this species, and Giglioli adds the adjective *rara*; I have given, however, the name which was used by Mr. Micallef and the one by which the specimen in the Museum is known.

52. (131) **Lullula arborea arborea** (L.). The Wood-Lark.

Local name: *Ciuklajta.*

Schembri calls this species rather rare and says that it occurs on passage in March and April, but not annually. Wright says it is less rare than the preceding, but cannot be considered common, and is met with in March and October. From my personal experience I can say that the species is not of annual occurrence and is generally rare. I have never met with it except in the autumn, though I have been assured by bird-dealers that it is to be also met with during the spring. During the autumn of 1911 these birds visited us in considerable numbers, but this is to be considered quite exceptional.

53. (130) **Alauda arvensis arvensis** L. The Sky-Lark.

Local name: *Aluetta.*

Occurs on migration during the autumn, when large flocks may be seen arriving almost daily. According to both Wright and Schembri, new arrivals are also noticed during the spring; this statement, however, I have not yet been able to confirm, and it appears to me that the individuals which are observed during this season are only some of the birds which have passed the winter with us. It is true that the number of Larks brought into the market during the spring is at times considerable, but it must also be taken into account that the number of sportsmen who infest the country during that season is considerable too.

54. (135) **Ammomanes phœnicurus arenicolor** (Sundev.). Sundevall's Desert-Lark.

Local name: *Aluetta bajda.*

Having been assured by several sportsmen and netters that there are locally taken specimens preserved in some of the local private collections, I put the species as a very rare autumn visitor on my list of 1915, but having now examined several of such specimens I find that they are only isabelline forms of the common Sky-Lark. The species is, however, entitled to a place amongst the birds of Malta as there was a specimen in Dresser's collection, which was taken in Malta in April 1867, and, perhaps, on account of the one in Schembri's collection, reported as *Alauda lusitanica* by Wright.

55. (128) **Eremophila alpestris flava** (Gm.). The Shore-Lark.

Local name: *Aluetta safra.*

On the 2nd of October, 1912, a specimen of this species was brought to me by a country lad from Binghisa, who captured it in that locality while netting for Sky-Larks. About two months later I heard that a bird, which was named *Aluetta safra*, had been taken in Gozo by the Right Rev. Canon V. Attard. In January of the year following this gentleman visited my collection and, on seeing the specimen in my collection, told me that the *Aluetta safra*, procured by him in December, was identical with it.

56. (133) **Chersophilus duponti duponti** (Vieill.). Dupont's Lark.

Local name : *Aluetta tad-desert.*

A specimen of this species was taken on the 15th of November, 1901, within the limits of Gargur ; this was brought to Mr. Micallef, who, considering it justly a bird of unique occurrence in these islands, though in very bad condition, mounted it in the best way he could. In 1912, Mr. Leach, who was then curator, bought the specimen for the Museum, where it is at present preserved. It must be noted, however, that in 1912 the specimen was already in a deplorable state of preservation, so that it is now in a still worse condition. The local name appears to have been given by Mr. Micallef.

57. **Alæmon alaudipes alaudipes** (Desf.). Bifasciated Lark.

This is also a bird of unique occurrence in these islands. A specimen was sent to me on the 9th of December, 1916, by my friend the Hon. Jos. Zammit. It was taken a few days previously in the neighbourhood of Krendi by a netter of the village. My friend also assured me that about the same time another specimen was observed in the same locality, and that he was under the impression that the first specimen was somewhat larger than this.

Temminck says that this species has occurred in Sicily ; Arrigoni, however, in his list of 1913, places the species amongst those erroneously figuring in Italy's avifauna, saying that further evidence is needed before admitting it amongst Italian birds.

58. (74) **Anthus richardi richardi** Vieill. Richard's Pipit.

Local name : *Bilblun salvagg.*

Schembri records a specimen procured on the 18th of December, 1840. Wright says that the species is accidental, and records two individuals which he saw at Forth Manoel Island, one of which he succeeded in shooting, and another he says was recorded in October—the year, however, is not stated for this. In November 1911, Mr. Jos. Zammit sent to me a specimen, which he shot in the neighbourhood of Krendi; this, however, was in such an advanced state of decomposition that it could not be preserved. A few days later I received another specimen from my friend Mr. L. Cachia Zammit, who had taken it in the nets in the vicinity of Wied il Buni.

59. (73) **Anthus campestris campestris** (L.). The Tawny Pipit.

Local name: *Bilblun.*

Common, but by no means abundant like some of its congeners; it visits us regularly during the spring and at the beginning of autumn. Schembri and Wright both say that it is not to be met with during the winter, and though I found one in our market on the 4th of January, 1911, I am convinced that this must be considered only an exceptional case.

60. (69) **Anthus trivialis trivialis** (L.). The Tree-Pipit.

Local name: *Tizz.*

Pretty common on migration during the spring and autumn. Those which arrive during the latter season generally pass the winter with us. From my observations I can say that in the autumn they arrive a little later than the Meadow-Pipits, and I have also observed that in some years they appear to become somewhat scarce. According to Schembri, the local name *Tizz* is intended for the young of this species, the adult being known as *Pespus tal Giargir.* Wright, however, seems to have corrected this statement, giving simply the local name *Tizz.* On more recent lists Schembri's statement has been again repeated; it may be taken for certain, however, that the name now given is the one by which the Tree-Pipit is locally known.

61. (68) **Anthus pratensis** (L.). The Meadow-Pipit.

Local name: *Pespus.*

Occurs in considerable numbers during the autumn; the first arrivals are usually noticed in October; the bulk of the birds, however, are never with us before the beginning of the following month. According to Wright, the species passes again in March; I believe, however, that the individuals observed during that month are only those which have lingered here after the autumn migration, and which have been so fortunate as to escape the net and the gun. The local name, *Pespus tal Giargir*, found in almost all other lists of the birds of Malta, has now fallen into disuse, and the bird is known at present by the simple name of *Pespus*.

62. (70) **Anthus cervinus** (Pall.). The Red-throated Pipit.

Local name: *Pespus ahmar.*

I quite agree with Wright, who states that this species has escaped notice, owing probably to its having been considered a variety. I have met with it very frequently from October to March; I cannot say, however, that it is common, and during some years it appears to be undoubtedly rare. In several lists the local name given is *Tizz ahmar*; I find, however, that the majority of netters and sportsmen know the species by the name given above.

63. (71) **Anthus spinoletta spinoletta** (L.). The Water-Pipit.

Local name: *Tizz salvagg.*

The species was first recorded by Schembri, who says that it was observed by Dr. Grech Delicata in October 1842. Wright records the capture of two specimens, one shot by him on Fort Manoel Island on the 5th of November, 1860, and another by Captain Feilden, in the same locality, in November 1873. The local name is taken from Giglioli's 'Avifauna Italica,' whence Blasius has probably adopted it.

64. (72) **Anthus spinoletta obscurus** (Lath.). The Rock-Pipit.

Local name: *Tizz rar.*

In my list of 1915 I said, by mistake, that this species has been twice recorded in these islands; I must now, however, correct that statement and say that the only occurrence of the Rock-Pipit in Malta is that recorded by Wright in the third appendix to his list. Blasius reports the same record; no local name, however, is given by either, the one which I have given has been suggested by the Hon. Prof. Magro.

65. (65) **Motacilla flava flava** L. The Blue-headed Wagtail.

Local name: *Isfar.*

Occurring in considerable numbers on migration in spring and autumn; during the former season the first arrivals are noticed by the beginning of March, and during the latter season they are to be seen by the middle or end of August—solitary individuals may be met with at a much earlier date. Thousands are taken during both migrations; these are most frequently sold to children, to meet, of course, a miserable end. They can be at times seen exposed as game on the stalls in the Market; the majority of the population, however, consider these birds almost unfit for food. The local names, *Cacciamosc* or *Cappamosc*, and *Giarnell*, are generic—the first two are more frequently used in Malta, the last in Gozo, where different names are used for some of our birds.

66. **Motacilla flava cinereocapilla** Savi. The Ashy-headed Wagtail.

Local name: *Cacciamosc.*

Arrives together with the foregoing and is equally common. Our bird-catchers and dealers seem to make no difference between the two species, and call them indifferently by the names given in the foregoing note: as a distinction, therefore, I have given *Cacciamosc* as the local name for this species, though I am sure that by most people it will continue to be called *Isfar*, or by either of the other two names. In my list of 1915 I did not include this species, though it has been also reported by Schembri and Wright.

67. (66) **Motacilla flava melanocephala** Licht. The Black-headed Wagtail.

Local name: *Obrox.*

Arrives together with its congeners, but it is by no means as common, though Schembri says it is. Wright is undoubtedly more correct in saying that it arrives together with the foregoing, but is the rarest of them. From my observations I can say that these birds occur during some years in fairly good numbers; as a general rule, however, they are to be considered scarce.

68. (67) **Motacilla flava rayi** (Bp.). The Yellow Wagtail.

Local name: *Obrox rashu safra.*

Recorded by Wright in the fourth appendix to his list of the birds of Malta, where it is said that the specimen in the University Museum was taken in the spring of 1862. I have seen two specimens in the collection of Mr. Micallef and one at a dealer in St. John's Square—this last was taken in the vicinity of Krendi on the 12th of April, 1912; unfortunately it was in a very bad state of plumage, having the tail and primaries of both wings clipped off. The local name given I have adopted from the netters, and I think it is much better than the one given in the 'Catalogue of the Collection of the Birds of Malta,' *Giarnell*, which, as already stated, is only a generic name.

69. (64) **Motacilla boarula boarula** L. The Grey Wagtail.

Local name: *Zacac tad-dell.*

A regular migrant, which begins to arrive towards the end of summer, lingers here throughout the winter, and is to be met with until the middle of spring. It is never seen in flocks like its congeners, but mostly singly and more rarely in pairs. Late in the winter these birds may often be observed over the roofs of houses, even in Valletta, but in the spring they are rarely seen in these localities; at that time they are off in search of a suitable breeding-place—their nesting, however, is not so easily effected, as the poor birds will be truly fortunate if able to escape the man with the gun.

70. (62) **Motacilla alba lugubris** Temm. The Pied Wagtail.

Local name: *Zacac iswed.*

This species was first recorded for Malta in my list of

1915, where I stated that it is a very rare autumn visitor. Until that year, in fact, I had seen only about half-a-dozen specimens, all of which were taken at that time of the year. On the 5th of April, 1916, however, I met with a specimen at the dealer's in St. John's Square, but as it was minus a part of the tail and primaries, I thought it was not worth while preserving, knowing, moreover, that there is a fine specimen in the collection of our Museum. The local name above given I have picked up from the dealer, who possessed the just-mentioned mutilated bird.

71. (63) **Motacilla alba alba** L. The White Wagtail.
Local name: *Zacac.*

Very common, and sometimes occurring in very large numbers during the autumn. Schembri says that these birds arrive here in September: I have never seen them, however, before the middle of October, when the first arrivals are generally noticed; a solitary individual may perhaps be seen early in October, but this is to be considered as quite exceptional. Great numbers of these Wagtails are taken yearly in the clap-nets, to meet, of course, the same miserable end as the other Wagtails. Wright says that the species is generally seen in small flocks, but I have often observed it in very large flocks as well. The local name *Ziczak*, which is found in Wright's 'List of the Birds of Malta,' is evidently a misprint.

72. (60) **Tichodroma muraria** (L.). The Wall-Creeper.
Local name: *Dakkuka tal gebel.*

On the 5th of November, 1904, a specimen of this species was shot in Wied Babu, a deep ravine in the vicinity of Zurrico, by my friend Mr. Jos. Zammit. Though it was picked up in a rather bad condition, seeing that it was a rarity, my friend did not fail to preserve it, and sent it to a local taxidermist, who set it up in the best way he could. The specimen is now in Mr. Zammit's collection. The local name was given to the bird by its capturer, and I think it is quite to the point—*Dakkuka* on account of its mode of flight, which my friend said is very similar to that of the Hoopoe, and *tal gebel* is practically the equivalent of the Latin *muraria.*

73. (57) Parus major major L. The Continental Titmouse.

Local name: *Fiorentin.*

This is only an accidental visitor during the autumn; at least the seven specimens which I have seen taken in Malta all occurred during that season. No mention is made by Schembri of this species, but I have seen a specimen in his collection labelled November 1843. Wright records two specimens, one taken in 1866 (no date, however, or locality is given), the other was captured at the Pietà on the 8th of October, 1871. I have three specimens in my collection; the first I bought from Giulio Mallia in October 1908, another was brought to me from Zurrico on the 10th of October, 1909, and a third I bought from a dealer, nicknamed Ferraru, on the 21st of October, 1911. There is a specimen in the University Museum—this, however, bears neither locality nor date. Besides the above-mentioned, I know two or three other specimens in private collections.

74. (58) Parus cæruleus cæruleus L. The Continental Blue Titmouse.

Local name: *Primavera.*

In my list of the birds of Malta of 1915 I stated that the species has been only once recorded in Malta, and I alluded to the specimen in our museum, which was taken at Zurrico and purchased by the curator, Mr. C. Leach. Since the publication of the list, however, I found out that the late Prof. G. Gulia, in his 'Repertorio di Storia Naturale,' says that these Tits sometimes arrive in Gozo in great abundance, and that a few individuals have been known to occur in Malta too. Wright mentions this statement in the third appendix to his list of the birds of Malta, saying that Gulia is evidently mistaken. To-day also, Prof. Gulia's statement sounds incredible, as the birds are undoubtedly of very rare occurrence in all the islands composing the Maltese group; but I quite remember when Mr. G. R. Busuttil, sent as a present to my father a dish-full of very small and beautifully coloured birds, which, according to the impression left on my memory, could only have been Blue Tits. The local name above given has been picked up from the dealers in St. John's Square. I cannot give, however, the reason why the birds are so called.

75. (59) Parus cæruleus ultramarinus Bp. Algerian Blue Tit.

Local name: *Primavera rasha griza.*

In the spring of 1908 Mr. Micallef showed me a specimen which he was preparing for Mr. Leach. I was told that Mr. Leach had bought it of Giulio Mallia, from whom I gathered that the bird was taken in the neighbourhood of Zurrico by a netter of the village. The words "*rasha griza*" added to the local name "*Primavera*" mean grey-headed, which I think will be easily accepted, as they point out the main difference which exists between this species and the previous one.

76. (36) Regulus regulus regulus (L.). The Continental Golden-crested Wren.

Local name: *Ziemel.*

Schembri says that these birds are very rare, and when they visit us it is generally during stormy weather in December and January. Wright also states that the species occurs in the winter, but he adds that, though it appears somewhat rare, it no doubt often escapes detection. I have seen only two specimens obtained in these islands—one was taken in 1899 and was preserved by Mr. Micallef, the other was sent to me in the flesh on the 10th of November, 1912, by my friend Mr. Jos. Zammit.

77. (37) Regulus ignicapillus ignicapillus Temm. The Fire-crested Wren.

Local name: *Ziemel tat-toppu ahmar.*

For this species Schembri and Wright repeat the same statements given with the foregoing; the latter, however, records a specimen shot by Mr. J. Horne on the 5th of November, 1860. From my observations I can say that this species is much more frequent than its congener, the Gold-crest; it makes its appearance by the middle of autumn, and remains throughout the winter with us. I have often counted as many as a dozen individuals in our public gardens; they are not, however, easily detected unless one knows them by their peculiar note. The words "*Tat toppu ahmar*," which mean "fire-crested," have been added to distinguish this species from the Gold-crest.

78. (80) **Lanius minor** Gm. The Lesser Grey Shrike.

Local name: *Bughajjat second.*

A quite accidental visitor first recorded by Schembri, who says that several of these birds were noticed in September 1839, and others appeared in September and October of the following year; after that date, however, Schembri states that he has seen but very few of these birds. Wright mentions the specimens recorded by Schembri, and states that one of these was still in this gentleman's collection when he published the list of birds observed in Malta and Gozo in 1864. In the fourth appendix to his list, Wright records a specimen obtained by him in September 1866. Giglioli and Blasius give the local name "*Bughajjat*," the word "*second*" which has been added is only an equivalent of the English "Lesser," and it serves to distinguish this species from its larger congener, the Great Grey Shrike.

79. (76) **Lanius excubitor excubitor** L. The Great Grey Shrike.

Local name: *Bughajjat.*

Schembri records a specimen which was in the possession of Dr. G. C. Grech Delicata in 1842. I saw another specimen in Mr. Micallef's collection; this was shot in the neighbourhood of Birchircara in the autumn of 1894 by Vincenzo Chicaci, a well-known sportsman of that village.

The local name given I obtained from Chicaci, and I am quite sure that the name *Cacciamendula* given by Giglioli with two points of interrogation is only intended for the Woodchat-Shrike.

80. (78) **Lanius excubitor meridionalis** Temm. The South European Grey Shrike.

Local name : *Bughiddiem.*

Schembri records a specimen shot from a flock of five by Mr. Baldassare Ellul in September 1837 : he also states that the last specimen seen by him occurred in September 1839. Wright mentions also two specimens in his collection, one of which, he says, is a female in the plumage of the adult male, and was killed on the 12th of February, 1861. I have seen three specimens in Mr. Micallef's collection, one of which was shot in the neighbourhood of Gargur in the autumn of 1902 ; another was taken in the vicinity of Krendi in the autumn of 1906 ; and the third was bought in the Valletta market in the spring of 1909. Schembri, Giglioli, and Blasius give *Bughajjat* as the local name for this species, thus making no difference between it and the previous one. The name which I have selected is the one by which Mr. Micallef used to call the three specimens he possessed.

81. (82) **Lanius senator senator** L. The Woodchat-Shrike.

Local name : *Cacciamendula.*

This is one of our partial resident and breeding species ; it generally arrives late in the spring and is to be met with in small numbers throughout the summer. Fresh arrivals are usually observed towards the beginning of autumn, and these, together with those which arrived here in the spring and those bred locally, depart at the approach of winter. A few years ago this Shrike could be considered as pretty common. At present, however, it is undoubtedly very scarce : as a breeding-bird it is becoming rarer every year ; this is due to the local persecution it is subjected to.

82. (77) **Lanius fallax** Finsch. Finsch's Shrike.

Local name: *Bughajjat Ciar.*

I saw a mounted specimen of this species at Mr. Micallef's, and I am under the impression that the specimen was sent to him for mounting by Mr. Leach. I was told that the bird was captured in the neighbourhood of Zurrico—the date of its capture, however, I could not find. The name given I have taken from Mr. Micallef.

83. (79) **Lanius algeriensis** Less. Algerian Grey Shrike.

Local name: *Bughiddiem ta Barbaria.*

I saw a specimen which was shot in the neighbourhood of Siggieui in November 1913, and another at a bird-dealer's at the Marnia, Valletta; this I was told was also taken in the island, in March 1914. It was in a rather bad state of plumage, and I think the dealer asked too much for it, anyhow I thought it was not worth preserving; I suspected, moreover, that it might have been an imported bird.

84. (81) **Lanius collurio collurio** L. The Red-backed Shrike.

Local name: *Cacciamendula hamra.*

Wright records a specimen obtained by Schembri after the publication of this gentleman's catalogue in 1843, and another which was found by him in the market: about this, however, he seems to have some doubts. I have a specimen in my collection which was shot at "il Brolli" in the vicinity of Birzebbugia on the 25th of October, 1908. Giglioli and Blasius give the local name for the species simply "*Cacciamendula*," this being, however, also given to the Woodchat, the adjective "*hamra*" (red) has been added as a distinction between the two.

85. (83) **Ampelis garrulus** L. The Waxwing.

Local name: *Sultan li spunsuni.*

A farmer at Zurrico, Francesco Farrugia by name, captured two of these birds in January 1913. I did not see the specimens, but, from the description given me by Farrugia, I concluded that the birds in question were nothing but a pair of Waxwings. I came to know also from another sportsman that a bird similar to those taken by Farrugia was captured on the 2nd of November, 1903. In my list of 1915 there is a misprint, and this can be seen from my list of new occurrences published in the 'Bulletin' of the Malta Historical and Scientific Society for 1913. The local name I got from a husbandman at "il Bakkari," who saw the birds taken in 1913, and who, on being shown a picture of the Waxwing, assured me that it represented exactly the birds he alluded to.

86. (84) **Muscicapa striata striata** (Pall.). The Spotted Flycatcher. [*M. grisola* auct.]

Local name : *Zanzarell griz.*

Schembri says that this species is not very common, occurring on passage mostly during the autumn, and, in the appendix to his catalogue, he says that it arrives also in the spring. According to Wright the species is very common in spring and autumn, arriving later than its congeners, and is one of the last to leave us in the spring. From my own observations I can only say that this Flycatcher is by no means common, and, though it is met with during the spring and autumn, it is more frequent during the former season. The adjective "*griz*" (grey) added to the local name *Zanzarell* serves to distinguish it from its congener, the Collared Flycatcher, which is called simply *Zanzarell.*

87. (85) **Muscicapa hypoleuca hypoleuca** (Pall.). The Pied Flycatcher. [*M. atricapilla* auct.]

Local name : *Zanzarell iswed.*

Schembri states that the Pied Flycatcher is not very common, and occurs on passage in March and December. According to Wright, it occurs also in spring and autumn, but is not common like the Spotted Flycatcher. Both Giglioli and Blasius give the local names *Zanzarell* and *Buswejda.* This last is undoubtedly only given to the Sardinian Warbler; the adjective "*iswed*" has been added for distinction, and it is already much in use.

88. (86) **Muscicapa collaris** Bechst. The Collared Flycatcher.

Local name: *Zanzarell.*

Wright says that this species arrives and departs about the same time as the Pied Flycatcher, and that Schembri has confounded these two birds. I consider this species rare—in fact, I have not yet succeeded in procuring a specimen for my collection; it also appears that the majority of bird-dealers and catchers do not even know the existence of the species, and those who have met with it call it simply "*Zanzarell.*" Giglioli and Blasius give *Buswejda* and *Zanzarell* also for this species—the former, as said already, is, however, intended for a totally different bird.

89. (87) **Muscicapa parva parva** Bechst. The Red-breasted Flycatcher.

Local name: *Zanzarell second.*

I have seen only one specimen of this species; it was taken by Francesco Farrugia (ta Majna) at "il Bakkari," a locality midway between Birzebbugia and Zurrico, on the 7th of October, 1913, but several netters state that they have more than once met with the species. I give it here as rare and perhaps overlooked. The local name is almost an equivalent of the Latin.

90. (41) **Phylloscopus collybita collybita** Vieill. The Chiffchaff.

Local name: *Violin.*

The Chiffchaff is a pretty common migrant, which arrives here by the middle or end of autumn and remains with us throughout the winter. Schembri says that it is very common, and may be met with in winter even inside Valletta. Wright remarks that careful measurements of specimens taken by him and by some friends of his showed that the Chiffchaffs found in Malta are generally somewhat smaller than those from northern Europe; and that Sir William Jardine had also noticed this peculiarity in examples sent to him by Dr. Adams and by Wright himself. Schembri and Wright give *Bufula* as the local name for this species; Giglioli and Blasius give *Bufula taxxitua.* I found, however, that *Bufula* is given to Marmora's Warbler, and though *Bufula taxxitua* is used by some, the local name given above is the one in more common use.

91. (38) **Phylloscopus trochilus trochilus** (L.). The Willow-Warbler.

Local name: *Rosinjol bastard.*

This species is not included in Schembri's catalogue. Wright, however, says that it is a bird of passage in March, April, September, and October, and that, though it does not appear to be very common, he obtained several specimens in both seasons; he also remarks that the individuals taken during the autumn are chiefly young of the year. I have heard from several observers that this species is found here during the winter; this, however, I have not yet been able to confirm. From my own experience, I can say that these birds are to be met with during the spring and autumn, when they are not at all common. Wright gives as the local name *Bufula.* Giglioli and Blasius besides this give also the one which is used here; and, as I have already stated, since the name *Bufula* is given to another species, it is better to keep for the present one the local name *Rosinjol bastard.*

92. (39) **Phylloscopus sibilatrix sibilatrix** (Bechst.). The Wood-Warbler.

Local name: *Bufula hadra.*

According to Schembri these birds arrive here in November and pass the winter with us. Wright, however, states that he could not confirm Schembri's last statement, and that in this he is supported by Dr. Adams's observations; he gives the species as common during the spring and autumn, and adds that, though he has not met with it in the winter, he saw it late in the autumn. I have seen it during the spring and autumn, and met with it twice in January. During some years these birds visit us in considerable numbers; in others, however, they seem not to occur at all. The local name *Bufula* is given by Wright, Giglioli, and others. I find, however, that *Bufula hadra* is the name now more commonly used.

93. (42) **Phylloscopus superciliosus superciliosus** (Gm.). The Yellow-browed Warbler.

Local name: *Violin rar.*

This species was first reported amongst our birds in the 'Catalogue of the Collection of the Birds of Malta,' published by Government in 1907; the specimen alluded to, however, appears to be only a very fine example of the Chiffchaff. On the 20th of February, 1913, I observed one of these birds at the upper Barracca, and four others at Sant' Antonio in March of the same year. Mr. Micallef assured me that he mounted a specimen for the University Museum, but I have not yet been able to trace his specimen. The local name above given has been suggested by the Hon. Dr. Magro, and it is already in use.

94. (40) **Phylloscopus bonelli bonelli** (Vieill.). Bonelli's Warbler.

Local name: *Beccafic tal ful.*

Schembri says that this species is rather rare and passes the winter here; and Wright, without stating its frequency, says that it is a bird of passage in spring and autumn; he also seems to have procured several specimens, and has made comparisons between these and *P. trochilus.* I have met with it on two occasions only, consequently I consider the species very rare. The first one I saw was at Birzebbugia in the spring of 1909, the other one was given to me by my friend Mr. Salvatore Bonnici in the spring of 1911; this was, however, in such a bad condition that it could not be preserved. On showing this specimen to several persons, I was told by them that it is known by the local name *Beccafic tal ful* (Warbler of the beans), and this on account of its frequenting, as they said, the bean-fields where it hunts the aphids which generally infest those plants.

95. (53) **Cettia cetti cetti** (Marm.). Cetti's Warbler.

Local name: *Beccafic tal' ilma.*

Blasius having found this local name given in Giglioli's 'Avifauna Italica,' included the species in his list of Maltese birds. I saw a specimen in a very bad state of preservation at Mr. Micallef's in 1912. It was labelled "*Occhio rosso, Beccafic tal ilma, Malta Aprile 1901.*" For these reasons I give the species a place amongst our avifauna, though further evidence is certainly desirable.

96. (50) **Lusciniola melanopogon melanopogon** (Temm.). The Moustached Warbler.

Local name: *Beccafic kastni.*

Recorded by Wright, who says that a specimen in the possession of Sir William Jardine was shot by Dr. L. Adams at the Marsa on the 11th of November, 1866. The local name given by Giglioli is "*Beccafic ahmar,*" but, as the Whitethroat is known by this name, I think the name here given, suggested by the Hon. Dr. Magro, which is a translation of the Italian "*Forapaglie castagnuolo,*" is much more to the point.

97. (52) **Locustella luscinioides luscinioides** (Savi). Savi's Warbler.

Local name: *Bufula griza.*

Schembri reported this species on the authority of Dr. G. C. Grech Delicata, who assured him that he met with it in November 1842. Mr. Micallef procured a specimen about twelve years ago. This, however, I have not seen. The local name given by Giglioli is *Bufula griza rara.* As we have not, however, any bird known by the name *Bufula griza,* it is better to leave the adjective *rara* out.

98. (51) **Locustella fluviatilis** (Wolf). The River-Warbler.

Local name: *Beccafic taxxmajjar.*

Reported by Schembri on the authority of Dr. G. C. Grech Delicata. The local name given is a translation of the Latin, and has been suggested by the Hon. Dr. Magro.

99. (47) **Acrocephalus arundinaceus arundinaceus** (L.). The Great Reed-Warbler.

Local name : *Baghal.*

Both Schembri and Wright say that this species is not common, and that it occurs on passage during the autumn. From my personal experience I can say that during some years it is pretty common, especially during the autumn. and I have often met with it also during the spring. In 1911 these birds were exceptionally abundant during both seasons, and many were taken, especially in September and October. Besides the name here used, Giglioli gives *Gharab.* This, however, I have never heard, and at present is undoubtedly not in use.

100. (46) **Acrocephalus streperus streperus** (Vieill.). The Reed-Warbler.

Local name : *Baghal second.*

Both Schembri and Wright say that this species is not common, and that it occurs on passage in September and October. Wright records a specimen taken in the last week of August by Mr. J. Horne. I have never met with the Reed-Warbler, and personally consider it very rare. The local name given is taken from Giglioli.

101. (49) **Acrocephalus schœnobænus** (L.). The Sedge-Warbler.

Local name : *Baghal terz.*

Schembri says that this species is rather common, and occurs on passage in March and September. Wright says it is not uncommon in April, May, September, and October, but is not seen in any great numbers. I have only met with the species about a dozen times, and this was always during the spring. Schembri gives the local name *Violin*, but this, as we have seen, is applied to the Chiffchaff ; so I think that the one I have selected, which has been suggested by the Hon. Dr. Magro, is to be preferred.

102. (48) **Acrocephalus aquaticus** (Gm.). The Aquatic Warbler.

Local name : *Baghal rar.*

On the 5th of October, 1909, a country lad from Binghisa, known by the name of "Wigital Musu," brought me some Nightingales, among which, he said, there was a *Baghal rar*. This I found to be a specimen of this species, so I have kept the local name given by its captor as one which might be retained. I was assured by the lad that the species is not so rare as I imagined, though he called the bird by that name. I must confess, however, that the specimen above mentioned is the only one I have seen.

103. (43) **Hippolais icterina** (Vieill.). The Icterine Warbler.

Local name : *Bufula tar-rebbigha.*

Wright says that this species has been often confounded with its congener *H. polyglotta*, and it occurs regularly in April, May, September, and October. He also states that Schembri included in his catalogue *H. polyglotta* instead of the present species. From my own observations I cannot but consider the species as irregular and rare ; in fact, I have not been able to procure a specimen since 1908. Several who seem to know the species assure me that it is to be met with only during the spring, and that they know it by the name of *Bufula tar-rebbigha*, which signifies "the warbler of spring."

104. (44) **Hippolais polyglotta** (Vieill.). The Melodious Warbler.

Local name : *Beccafic isfar.*

Wright says that he has never seen this species, though Schembri includes it in his list. I obtained an individual, shot by my friend Mr. S. Bonnici on the 18th of September, 1908. The bird was presented to me as the *Beccafic isfar*, by which name it appears to be known by several country people, who assert that the species occurs in fair numbers during some years. Of this, however, there appears to be need of further evidence.

105. (33) **Sylvia hortensis hortensis** (Gm.). The Orphean Warbler. [*Sylvia orphea* auct.]

Local name: *Beccafic abjad.*

Schembri says that this species is not common, but occurs annually in March, September, and October. According to Wright, it appears to be rare, and he records a single specimen seen by him which was sent to Sir William Jardine in 1858. Besides this he mentions Tallack's statement that this bird is common in the soldiers' cemetery at Floriana (and I take here the opportunity to say that Tallack is most inaccurate in several of his statements about Malta). I consider this Warbler as a generally rare species, though it occurs in considerable numbers during some years. In the spring of 1907 it arrived in fairly good numbers; since that year, however, I very seldom met with it. The local name given is taken from Giglioli.

106. (27) **Sylvia borin borin** (Bodd.). The Garden-Warbler. [*Sylvia hortensis* auct.]

Local name: *Beccafic.*

Generally common, occurring on migration during both seasons, when it is taken in great numbers and brought into the market for sale. If it were not so much sought after and persecuted, I think it would breed here freely enough. I have found its nests several times. Schembri, too, says that the species sometimes breeds with us, and Wright states that as many as a hundred dozen are sometimes brought at a time into the market. It appears, however, that now, the bird being protected, it is not often seen exposed for sale, though many are still being taken and consumed by the netters themselves.

107. (32) **Sylvia atricapilla atricapilla** (L.). The Blackcap.

Local name: *Capinera.*

Schembri says that a few individuals arrive in March and April, and Wright states that the species, which he considers uncommon, has been observed in January, February, March, September, and October. I have usually met with it from February to April and from October to November, and, though it occurs annually, I consider it rare. Schembri gives it the local name *Beccafic,* and Giglioli and Blasius *Beccafic rasu seuda.* The name here given, however, is the one more commonly used.

108. (25) **Sylvia communis communis** Lath. The Whitethroat.

Local name : *Beccafic ahmar.*

According to Schembri, this species is rather common, occurring on passage in March and September, at times breeding also with us. Wright says it is one of the commonest of the Sylviidæ in spring and autumn, but does not say anything about its breeding here. I have known these birds to occur in considerable numbers in some seasons, but have found their nests only four times. The local name *Beccafic ahmar* appears first in Schembri's catalogue.

109. (26) **Sylvia curruca curruca** (L.). The Lesser White-throat.

Local name : *Beccafic irmiedi.*

Schembri says that he never saw this species, and reports it in his catalogue on the authority of Dr. Delicata, who found an individual in September 1842. Wright records the same occurrence, adding that he had never met with it himself. During the past eight years I have seen at least twenty specimens. I must say, however, that these birds are scarce, though it may be that they are often overlooked. The local name is given by Schembri, thus showing that Schembri also gave names to birds of very rare occurrence, or, at least, he accepted names which had been suggested to him.

110. (31) **Sylvia melanocephala melanocephala** (Gm.). The Sardinian Warbler.

Local name : *Buswejda.*

Both Schembri and Wright do not seem to consider this species as common, and they state that it generally appears during the winter months. From my personal experience I can say that, though it is rather irregular in its visits, it sometimes occurs in pretty large numbers during the winter and the spring, and it generally remains here to breed; I do not understand therefore why Wright says that he has never known the species to breed with us. The name *Ghasfur tal harrub,* given by Wright to this species, is used indifferently for many Warblers, and the name *Bugriza,* given in Giglioli's 'Avifauna Italica' is one which I have never heard.

111. (30) **Sylvia cantillans cantillans** Pall. The Subalpine Warbler. [*Sylvia subalpina* auct.]

Local name: *Ghasfur il harrub.*

Schembri says that this Warbler is not very rare, and occurs on passage in March and September. Wright repeats almost the same statement. I consider the species as usually rare, occurring during both seasons; it sometimes nests. On exceptional occasions it has been observed in considerable numbers. This happened, for example, in 1916, when I noted it as early as February 25. Though in other lists several local names are given to this species, I find the one which I have selected is that in most common use.

112. (34) **Sylvia undata undata** (Bodd.). The Provence Warbler.

Local name: *Ghasfur tas'sigiar ahmar.*

The Provence Warbler was first reported amongst the birds of Malta by Schembri on the authority of Dr. Grech Delicata, the statement being also repeated by Wright. In 1910–11 it appeared in fairly good numbers; so much, in fact, that some remained and nested with us. Since then I have observed single individuals almost yearly, but this Warbler being of very retiring habits, I am inclined to think that it is much overlooked. I by no means, however, mean to say that it is not rare. The local name here given appears on almost all lists.

113. (35) **Sylvia sarda** Temm. Marmora's Warbler.

Local name: *Bufula.*

I do not know whether any of our birds is more irregular in its visits than this Warbler. At one time I used to consider it as fairly common and occurring every year. In spite of this, however, I remember years when it did not appear at all. This happened, for example, in 1909–10–11 and 1914. In 1915 I met with it rather frequently from January to May, but in 1916 I did not come across it. Giglioli gives *Bufula griza* for this species; but, as this is given also to Savi's Warbler, and the simple name *Bufula* is not given to any species on our list, I think we may well leave it for this bird.

114. (45) **Agrobates galactotes galactotes** (Temm.). The Rufous Warbler.

Local name: *Rosinjol ta Barbarja.*

Schembri says that he met with this species during three passage seasons, and that from 1840 onwards some specimens were taken annually in September. Wright says it is rare and does not occur every year. In his fifth appendix he records an individual which was taken on the 23rd of May, 1873. I have seen only one specimen, which was captured on the 17th of September, 1909, so I consider the species is undoubtedly rare. The local name here given has been suggested by the Hon. Dr. Magro, it being almost an equivalent of the Italian *Rusignolo africano.*

115. (4) **Turdus pilaris** L. The Fieldfare.

Local name: *Malvizzun.*

Schembri says that this Thrush is very common, and occurs on passage in January, when it remains here for a part of the winter. Wright says it is the latest of the Thrushes which visit us in the winter, and is seldom seen before January, when a few are taken annually. He also says that it lingers here for a few weeks. I have met with the species from October to March; it is, however, more common during the first two months of the year. It also appears to be not of annual occurrence, for during some years not a single individual is to be seen. In 1913–14 these birds arrived in tolerably large numbers, and they were brought by dozens into the market daily.

116. (1) **Turdus viscivorus viscivorus** L. The Mistle-Thrush.

Local name: *Malvizzun rar.*

This is not included in Schembri's catalogue. Wright records a specimen obtained by him on the 1st of February, 1861 and another obtained by Mr. Thorne on the 2nd of December of the same year; a third was obtained also by him in the winter of 1862 and two others in the autumn of the following year. I saw a specimen in the autumn of 1905, and obtained one on the 15th of January, 1910. The adjective *rar* has been added to the local name *Malvizzun* to distinguish it from the foregoing.

117. (2) **Turdus philomelus philomelus** Brehm. The Continental Song-Thrush. [*T. musicus* auct.]

Local name: *Malvizz.*

According to Schembri, this species is commonly found here on passage in January and October. Wright says it is very abundant in October and November; a few continue to be seen until December, and it passes again in March. From my personal observations I can say that this Thrush generally appears in October. The greater number of the birds, however, appear in November. It is also to be met with throughout the winter, fresh arrivals being often noticed in January, and usually a plentiful migration is observed again in March. I remember some years when the species occurred in immense numbers; on the contrary, I know others when it was very scarce. The local name *Malvizz kambi*, which is to be met with on several lists, appears to have fallen into disuse.

118. (3) **Turdus musicus** L. The Redwing. [*T. iliacus* auct.]

Local name: *Malvizz ahmar.*

In Schembri's catalogue this species is reported on the authority of Dr. G. C. Grech Delicata, who records a specimen met with by him in November 1842. Wright records two individuals obtained by him in November and December 1861, and a third obtained by Mr. T. Horne on the 2nd of the latter month. The first specimen I have seen was taken at Halfar in December 1909; from that year I met with the species annually, and during the winter of 1912–13 I found that these birds occurred in fairly good numbers in the Valletta Market. I obtained more than a dozen specimens, the majority of which I mounted. The local name given by Giglioli and Blasius is *Malvizz rar.* I find, however, that several sportsmen and poulterers who happen to have met with the species, know it by the local name given above; this name after all is only a translation of the Sicilian *Turdus russu.*

119. (6) **Turdus sibiricus** Pall. Siberian Thrush.

Local name: *Malvizz tal Lvant.*

In October 1912, Mr. C. Lanzon obtained one of these birds, which was taken in the bat-net together with some other Thrushes by a bird-catcher from Zurrico, known by the name of "Angbu il Marrara"; I heard of the occurrence. At the time, however, the bird was wrongly identified by a gentleman as *Turdus varius.* After some time I visited Mr. Lanzon's aviary and found that the specimen in question belonged to the present species. Unfortunately the bird died while Mr. Lanzon was away from the place, and the servants, being quite ignorant of its rarity, did not preserve it. The local name of this bird, as Mr. Lanzon stated, was given to it by its capturer, and I think it might well be kept for the species, as it only signifies "Eastern Thrush."

120. (7) **Turdus torquatus torquatus** L. The Ring-Ouzel.

Local name: *Malvizz tas'sidra rar.*

According to Schembri this species is rare and occurs on passage in October and November; he also states that he had seen five specimens between 1830 and 1843. According to Wright, it is the rarest of the Thrushes. Nevertheless, a winter seldom passes without some being procured. I have seen only two specimens taken in the island: the first was in Mr. Micallef's collection, and was obtained in January 1902, the second, which is in my collection, was obtained by me from the Valletta Market on the 2nd February, 1910. The local name has been modified at the suggestion of the late Prof. Tagliaferro, to distinguish it from the following species, which appears to be the more common of the two, and which is perhaps alluded to by both Schembri and Wright under the Latin name of *T. torquatus*.

121. (8) **Turdus torquatus alpestris** (Brehm). The Alpine Ring-Ouzel.

Local name: *Malvizz tas-sidra bajda.*

I have seen at least twenty specimens of this species which was taken in the island, and this makes me consider it more common than the foregoing. Mr. Micallef, who handled several of these birds, says that the majority of them were of the present form. The local name is the one given by Schembri for *T. torquatus*, which, as I have already stated, is most probably intended for this form.

122. (5) **Turdus merula merula** L. The Blackbird.

Local name: *Malvizz iswed.*

Occurs on passage during the autumn, and is to be seen almost throughout the winter; it is sometimes noticed in March, and I have also obtained specimens during April. In 1911 these birds visited us; they made their first appearance in the last week of October, and could be seen until the middle of spring. Mackay's statement that it (the Blackbird) breeds here is undoubtedly an error, and it has probably been confounded with the Blue Rock-Thrush, which by some people here is erroneously called by the English name of Blackbird. Giglioli and Blasius call this bird also by the local name *Malvizz tat-troffa*, but, though I have heard it from a few persons, I can give it for certain that it is not much in use, the Blackbird being locally known as *Malvizz iswed.*

123. (9) **Monticola saxatilis** (L.). The Rock-Thrush.

Local name: *Gianbublu.*

Fairly common during both the spring and autumn, more abundant however in the former season, when it is sometimes taken in large numbers and brought into the market; it is usually plucked of its feathers and sold as a Song-Thrush. Schembri states that the species is not rare, and Wright that it arrives in pairs; evidently, therefore, it is one of the few which may be said to be on the increase.

124. (13) **Monticola solitarius solitarius** (L.). The Blue Rock-Thrush. [*Monticola cyanus* auct.]

Local name: *Merill.*

One of our common resident and breeding species which cannot possibly escape detection, even by the most superficial observer; as it is not included in Mackay's list, it is only natural to suppose that the Blue Rock-Thrush was the bird which he mistook for the Blackbird when he said that this last bird breeds near Musta. The Blue Rock-Thrush is one of our protected species, and it is badly in need of such a protection, as it is showing a very marked decrease. The bird was once known locally by the name "*Ciccu di Diu*," which is said to be a corruption of "*Cieco giudeo*"; this is, however, very seldom used at present, the common local name being the one given above.

125. (11) **Œnanthe œnanthe œnanthe** (L.). The Wheatear.

Local name: *Cuda.*

Both Schembri and Wright give this species as widely spread over the island during the spring and autumn. According to my observations, I can say that it is to be met with during both seasons, but is more common in the autumn when it begins to arrive at the end of August or during the first days of September; the bulk of the birds, however, are rarely noticed before the last week of this month. In the spring the first arrivals are observed by the beginning of March. The local name given by Giglioli and Blasius to this species is *Cuda bianca*. I find, however, that this is given by bird-catchers and dealers to the *Œ. hispanica*, the present species being locally known by the simple name *Cuda*.

126. (12) **Œnanthe leucopyga** (Brehm). The White-rumped Wheatear.

Local name: *Cuda rasha bajda*.

In the fifth appendix to his list of the birds of Malta, Wright records an example of this species shot on the 18th of April, 1872, by Signor Vitali on some rocky ground called "Tal Capuccini" on the south side of the Grand Harbour. The specimen was mounted by Signor Francesco Ellul, and passed into Wright's hands immediately afterwards. It is at present in the museum at Florence. The local name is the equivalent of the Latin.

127. (13) **Œnanthe hispanica hispanica** (L.). The Russet Wheatear. [*Saxicola stapazina* auct.]

Local name: *Cuda bianca*.

Occurs on passage during both seasons, but is not common. I remember some seasons when it appeared not to turn up at all. Schembri records it as arriving together with *Œ. œnanthe*, adding that it is not so common. Wright considered it comparatively scarce, and states that it arrives together with the common species, but perhaps a little later. I find that this is the species which is commonly called by our sportsmen *Cuda bianca*; Giglioli and Blasius, besides this name, give also *Dum nican*. This last is, however, intended for the Black-eared Chat (*Œ. aurita* auct.), which is now believed to be a dimorphism of the present species. Blasius gives another local name, *Cuda bastarda*; this, however, I have never heard.

128. (14) **Œnanthe hispanica xanthomelæna** (Hemp. & Ehr.). Eastern Russet Wheatear.

Local name: *Soru*.

This species was first recorded by Wright under the name of *Saxicola melanoleuca* in the fifth appendix to his list of Maltese birds. I have met with this species three times during the spring. I consider, however, the bird as rare. The local name *Soru* I obtained from some bird-catchers who appear to be ignorant of the names given by both Giglioli and Blasius.

129. (16) **Saxicola rubetra rubetra** (L.). The Whinchat.
Local name : *Buciak.*

It has been stated that this species occurs commonly enough during both spring and autumn. According to my own observations, however, I can say that, although I have met with it most frequently during the former season, I find that in the latter it appears to be very scarce. The local name *Buciak tal Cudi* seems to have fallen into disuse ; the one which has been selected, however, is also given to the Stonechat.

130. (17) **Saxicola torquata rubicola** (L.). Stonechat.
Local name : *Buzafzaf.*

Schembri says that this species is as common as the preceding, with which it generally arrives. Wright says that it arrives in spring and autumn, but is rather more common than the Whinchat; he also observes that, unlike its congener, it passes the winter with us. From my own observations I can say that it occurs on passage during the autumn, when it begins to arrive towards the beginning of November, and is to be seen here almost throughout the winter or till the beginning of spring, when it generally departs for northern latitudes to breed. Those who make a difference between this and the foregoing species know the bird by the local name given above.

131. (18) **Phœnicurus phœnicurus phœnicurus** (L.). The Redstart.
Local name : *Fiamma.*

Occurs on migration during both seasons, but appears to be more common during the autumn, when it makes its appearance during the last week of August. The bulk of the birds, however, are not seen before the second week of the following month, when many of them are taken in nets set for them and several other Warblers, all of which are sold as "beccaficos." I have never met with these birds in November, though Schembri states that they are also with us during that month. Besides the local name here given, the bird is also known as *Cudiross*, *Ta dembu*, and *Ta dembu ahmar*.

132. (19) **Phœnicurus ochrurus gibraltariensis** (Gm.). The Black Redstart. [*Phœnicurus titys* auct.]

Local name: *Fiamma Sewda*.

Both Schembri and Wright consider this species as not so common as the preceding, with which it generally arrives; Wright adds, moreover, that he has occasionally met with these birds when the winter was far advanced. I can say that the species is scarce and almost of rare occurrence; I have seen it, however, during the spring and autumn, and on two occasions met with it during the winter too. During the autumn it is seen later than its congener—in fact, I am of opinion that it is usually seen when the other is already gone. Though, as I have stated above, the species is generally rare, I remember two seasons when it was exceptionally common, and could be very easily procured.

133. (23) **Luscinia megarhyncha megarhyncha** Brehm. The Nightingale.

Local name: *Rosinjol*.

Generally occurring abundantly during the spring and autumn. During the former season it usually appears in April, and can be met with until the middle of May; during the latter it is first seen in September, and continues to be met with until November. Great numbers are taken in nets especially set for them during both passage-seasons; these are very often brought over to the Valletta Market, or are consigned to the pot in a somewhat shorter way.

134. (24) **Luscinia luscinia** (L.). The Eastern Nightingale.

Local name : *Rosinjol prin.*

The first specimen I met with was taken in the nets together with the Common Nightingale, near Hal Far, on the 29th of September, 1910, by a country-lad known by the name of "Wigi tal Musu." On showing the bird to several countrymen, I was told by them that during some seasons these birds arrive in fairly good numbers. I saw two more specimens in September 1912. The local name given I learned from the lad who brought me the first bird.

135. (20) **Luscinia suecica cyanecula** (Wolf). The White-spotted Bluethroat.

Local name : *Cudiross sidutu cahla.*

In the fourth appendix to his list of Maltese birds, under the name of *Cyanecula suecica*, Wright gives the following note :—"On the 28th of March, 1869, a male of the white-spotted form of this bird was shot in a field of *Hedysarum coronarium.* It has before been occasionally killed in Malta, but it is so extremely rare that this was the first specimen that ever came into my hands in the flesh ; the blue of the breast was very brilliant, and the pectoral spot of a pure silvery white. Several others were seen and shot about the same time." I have seen only one specimen taken alive at Malta—it was in Mr. Micallef's collection, and was captured in April 1917.

136. (21) **Luscinia suecica suecica** (L.). The Red-spotted Bluethroat.

Local name : *Cudiross sidutu cahla u safra.*

Schembri says that this is one of the rarest species of the family, and that whenever specimens are taken this happens always in March and August. Wright says that the individuals he examined had the pectoral spot very light rufous or pure white. There are two specimens in the University Museum ; these, however, bear neither date nor locality, and I have not yet heard from anyone that they have been captured in the island. Moreover, there seems to be some confusion about this and the foregoing species in Schembri's and Wright's catalogues, consequently I cannot but give the occurrence of this species as one in need of further evidence.

137. (22) **Dandalus rubecula rubecula** L. The Continental Redbreast.

Local name: *Pitirross.*

Pretty common, during some years occurring in rather large numbers. The first arrivals are generally noticed about the second or third week of October, and in a few days our valleys are full of these birds. The majority remain here for the winter, and those which are fortunate enough to escape the gun, the net, or one of the many traps set for their capture, generally depart at the approach of spring.

138. (54) **Crateropus fulvus fulvus** (Desfont.). The Algerian Bush-Babbler.

There is an example of this species in our Natural History Museum, consequently the bird figures in the 'Catalogue of the Collection of the Birds of Malta.' I was assured by Mr. Micallef that the bird was mounted by him, and that he received it in the flesh in 1902, so that he did not doubt for a moment that the example was locally taken. In spite of all this, however, I think that the occurrence is one of those which require further evidence.

139. (55) **Prunella collaris collaris** (Scop.). The Alpine Accentor.

Local name: *Zerzur prin.*

The first example which came under my observation was mounted by Mr. Micallef, who had asked me to identify it for him on the 14th of January, 1913. I learned from the same gentleman that the bird was sent to him in the flesh a few days before. Some time afterwards I came to know that a farmer from Gargur, Giuseppe Parnis (ta Bennard), had shot six of these birds in the vicinity of his village.

on the 11th of the same month. I have seen two or three of these specimens, but I could not make out if the one mounted by Mr. Micallef was one of the six specimens shot by Parnis or a different one altogether. On the 20th of November, 1916, a specimen was shot within the limits of Siggiewi by my friend Mr. Jos. Zammit, who sent it to me, and it now forms part of my collection. The adjective *prin* added to the local name signifies "greater."

140. (56) **Prunella modularis modularis** (L.). The Continental Hedge-Sparrow.

Local name: *Zerzur.*

According to Schembri this species is very rare, generally appearing in December and January. Wright calls it rather rare, and records several captures from November to May; I have seen it taken in spring and autumn, but never in the winter. The local name *Canal salvagg* is given in several lists for this bird; I find, however, that none of the bird-dealers and netters know the species by such a name. On the contrary, I met with several others who know it by the one I have given, and this I heard for the first time from my friend Mr. C. Zammit Gauci, who is one of our best taxidermists and a very keen observer of our birds.

141. (61) **Troglodytes troglodytes troglodytes** (L.). The Wren.

Local name: *Ghasfur tal mattemp.*

Reported by Blasius on the authority of Giglioli, who, besides giving the local name, says that the species is of accidental occurrence in Malta. I am under the impression that some years ago I handled one of these birds, which was captured at Wied iz-Zurrik, and I have heard from several other observers of the occurrence of the species in these islands; despite all this, however, further evidence is desirable.

142. (88) **Hirundo rustica rustica** L. The Swallow.

Local name: *Huttafa.*

The Swallow visits us in fair numbers during its migrations in spring and autumn. During the former season it is generally noticed early in March, and continues to be met with until May. During the latter season, the first arrivals are observed towards the end of September, and thereafter they are often to be met with until the end of October; single individuals may also be seen late in November. Wright says that specimens of the variety *H. rustica orientalis* have also been taken, and Schembri states that a couple or two of the Swallow at times breed here; this, however, I have not yet been able to confirm.

143. (89) **Hirundo daurica rufula** Temm. The Red-rumped Swallow.

Local name: *Huttafa hamra.*

Reported by Wright, who gives the following occurrences:—(*a*) Three individuals observed by him and Dr. Adams at the Salina on the 5th of April, 1862—of these Dr. Adams succeeded in shooting one. (*b*) A day or two afterwards Dr. Adams shot another one from the same place and saw several others. (*c*) Another, taken in April 1870—for this, however, no locality is given. The local name is given by Blasius and Giglioli. In Giglioli's list, however, it is *Huttafa hambra*, which is evidently a misprint.

144. (90) **Delichon urbica urbica** (L.). The Martin.

Occurs on passage together with the Swallow, and according to Wright, it seems to remain here a part of the winter when *H. rustica* has departed. According to Schembri, it passes the greater part of the winter here, when it can be seen flying about the streets of Valletta; this, however, is assuredly a thing of the past.

145. (91) **Riparia riparia riparia** (L.). The Sand-Martin.

Local name: *Hawwiefa tax-xtut.*

This, too, occurs on passage during the spring and autumn, but not always in the same quantity. I remember years when these birds visited us in very great numbers; I quite remember some seasons, however, when they were rather scarce. Schembri says that they are abundant in September, March, and April, but do not remain here for more than one month. Wright states that they are common in spring and autumn, but arrive a little later than the Martin. The local name, which is an equivalent of the Latin, has been suggested by the Hon. Dr. Magro.

146. (92) **Riparia rupestris** (Scop.). The Crag-Martin.
Local name : *Hawwiefa tal blat.*

Schembri says that this species is rather common both in April and September. Wright, in his 'List of the Birds of Malta,' says that he had never met with it. In the first appendix to his list, however, he states that he met with it in Gozo in December 1864, when he saw several individuals On the 26th of January, 1865, he also observed it, and again on the 20th February of the same year; he also says that about the same time he came across a specimen in the Valletta Market. In his second appendix he records one taken in Gozo by Dr. Adams on the 28th of February, 1864, and another obtained by him on the 8th of March of the same year. In his fifth appendix he again records the species, saying that he had seen several specimens in Gozo on two successive days at Christmas-time 1873. In my 'List of the Birds of Malta' of 1915, I gave this species as one of doubtful occurrence, and must confess that I had overlooked the observations made by Wright; I must add, however, that, though I have looked for the species most diligently, I have not yet succeeded in seeing a single specimen. The local name given is a translation of the Latin, and has been suggested by the Hon. Dr. Magro. Of the two local names given by Giglioli and Blasius, one does not distinguish the species from its congeners, the other is not in use.

[To be continued.]

XVIII.—*Notes on the Nidification of some Indian Falconidæ.* II. *The Genus* Accipiter.

By E. C. Stuart Baker, M.B.O.U.

(Plate VII.)

India is extraordinarily rich in Sparrow-Hawks, having at least four species besides sub-species, some of the latter having been given the rank of species by Indian field-naturalists and ornithologists.

The following are found within the limits of Burmah, Ceylon, and India, either as residents or as migrants :—

* *Accipiter nisus nisus.*	Migrant.
A. n. melanoschistos.	Resident.
A. virgatus virgatus.	Resident.
A. v. confusus.	Resident.
A. affinis.	Resident.
A. gularis.	Migrant.

Whether the Ceylonese form of *A. virgatus* can be separated from the South Indian one is very doubtful, and, again, it is equally doubtful whether either or both can be distinguished from the true *A. v. virgatus* from Java; if they can, they would bear the name *A. v. bezra* of Jerdon. For the time being, therefore, I keep all three of these forms under the same name.

Accipiter nisus nisus.

The Common Sparrow-Hawk.

This bird does not breed in any portion of India, the numerous accounts of its nests and eggs all referring either to *A. n. melanoschistos* or one of the other forms of Sparrow-Hawk.

At the same time, in the cold weather its distribution is very wide, and it may be found practically anywhere within the limits dealt with in this article. Harington obtained a rather pale specimen of true *A. n. nisus* as far east as Bhamo, the skin being duly identified by Hartert, and the specimen itself is now in the Tring Museum; to the south it has been taken certainly as far as the Neilgherries.

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* This form, found in Central Asia, is sometimes divided from the typical European bird under the name *A. n. nisosimilis.*

Accipiter nisus melanoschistos.

The Eastern Sparrow-Hawk.

I have never personally taken the nest or eggs of this Hawk, nor do I think it ever works its way south of the Brahmapootra River, though I found it not uncommon in the hills on the northern bank. Its best-known haunts within Indian limits are the North-West Himalayas from Baluchistan to Nepal. It extends, however, through Sikkim, Bhutan, the Mishmi and Abor Hills into the Shan States and Chin Hills, and indeed as far as Formosa (*Hartert*).

Harington found it in Bhamo in April, so it was evidently nesting there, and probably it breeds wherever found, though it may straggle beyond its usual limits in the cold weather.

It is known to nest up to at least 8000 or 9000 feet in the Punjab Himalayas, but it probably will be found to breed far higher even than this. I have had eggs sent me from Gyantse in Tibet, taken at over 12,000 feet, which were undoubtedly those of a Sparrow-Hawk of some kind, but unfortunately no skin was sent with the eggs, so that it is impossible to say to which form the eggs should be attributed.

In the Punjab and United Provinces, and in the North-West Frontier Province it breeds freely at heights over 4000 feet, but there is little on record about it, as, for the most part, our field-naturalists have not discriminated between the western and eastern forms of Sparrow-Hawk.

Whitehead (Bombay Nat. Hist. Journal, xxi. p. 306) quoting Donald, says :—

" This species breeds freely in Tirah, which lies just north of our limits, and every autumn some thirty or forty individuals are caught along the Kachai stream by drop-nets set up in the open, with a cage of fine net-web containing sparrows suspended in front. The Hawk, seeing the sparrows flutter up, makes a dash, and gets entangled in the mesh. The bazaar rate for a Sparrow-Hawk varies from R 2. to R 10."

Mr. P. Dodsworth and, I think, Mr. A. E. Jones have both taken its nest round about Simla; Ward on several occasions found it breeding in Kashmir; Buchanan, Rattray, Wilson, and others took its eggs in the Murree Galis, Kashmir, and Mussouri, and they have also been taken to my knowledge in Nepal and Sikkim.

Like its nearest relation, the English Sparrow-Hawk, this little Hawk nearly always, if not invariably, uses the deserted nest of another bird in which to lay its eggs. Sometimes, beyond adding a few leaves or pliant twigs as a new lining, nothing is done in the way of repairs; at other times a good deal of trouble is taken to add to and improve the borrowed structure, which loses all likeness to its original self, so much so that it may be quite impossible to guess to what bird it first belonged.

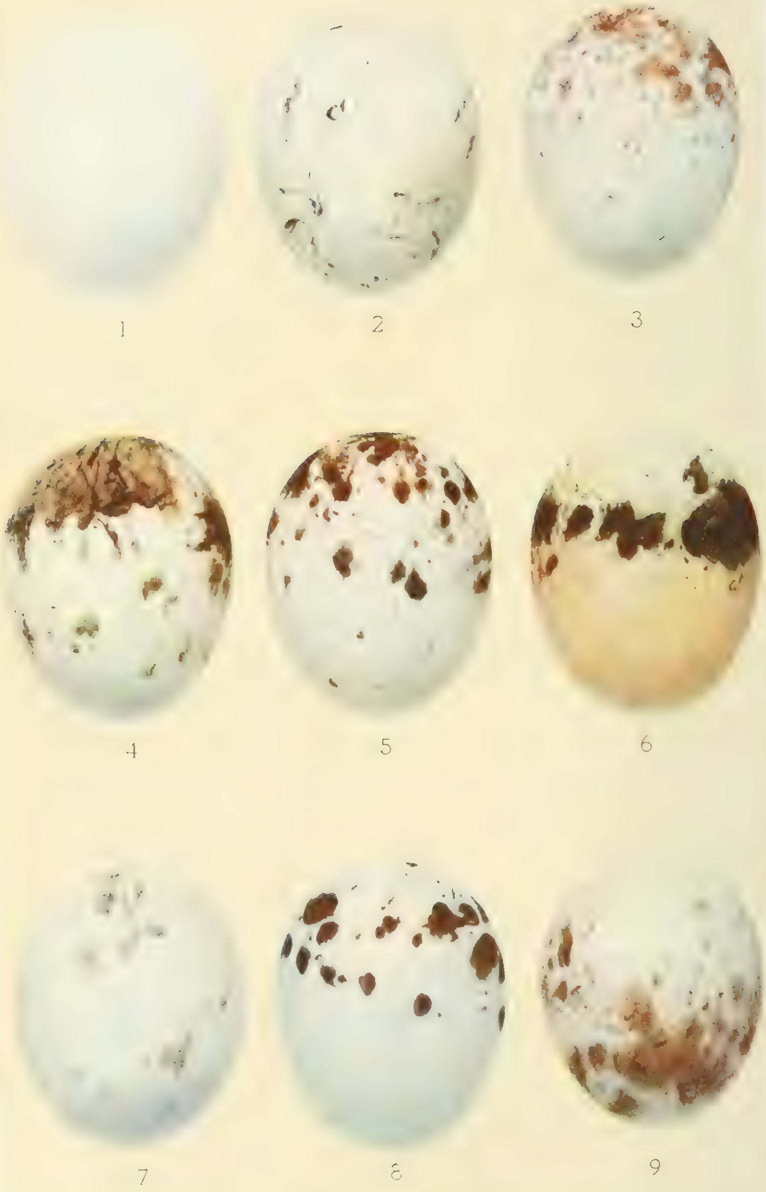
I have eggs in my own collection from Simla, Baluchistan, and other places, and, as a series, they cannot be in any way distinguished from similar series of eggs of the Common Sparrow-Hawk. On the whole, however, they are not so richly coloured, though each individual clutch can be easily matched with many of that bird.

The greatest extremes in length are 36·0 and 42·0 mm. and in breadth 30·8 and 33·4 mm., the average of 40 eggs being 40·3 × 32·4 mm.

I have seen no clutch of more than four eggs, and several of three eggs well advanced in incubation, but it is very probable that five may be sometimes laid.

It is said to desert its nest in most cases on very little provocation, yet occasionally it has been known to return to its nest and lay again after the first clutch has been taken.

It is a game little bird, and feeds, I think, even more exclusively on small birds than does the European Sparrow-Hawk. Undoubtedly over the greater part of its range in



MENPES PRESS WATFORD

Figs. 1-6. ACCIPITER AFFINIS.
Figs. 7-9. ACCIPITER V. VIRGATUS.

India it feeds principally on sparrows, but it will tackle quail, doves, babblers of various kinds, some of the larger laughing-thrushes and birds of like size, and has been known to attempt even the life of a green pigeon.

Accipiter affinis. (Pl. VII. figs. 1–6.)

The Himalayan Sparrow-Hawk.

This little Sparrow-Hawk breeds freely throughout the Sub-Himalayan region, but is rare in the western portion of its range, being more frequently met with in eastern Nepal and Sikkim: it is comparatively common in the hill-ranges of Assam, Chittagong, and in the Chin Hills, extending certainly as a resident into the Shan States and probably into Siam and the Malay Peninsula, whilst in the winter it wanders as far east as Hainan and Formosa. To the west I have no record of its breeding any further than Murree, where its eggs and nest were taken by the late Mr. Philip Mackinnon, and it is evidently rare there where it overlaps the range of *Accipiter nisus melanoschistos*.

In Assam and Eastern Bengal I found it during the breeding season generally frequenting hills between 2000 and 3000 feet, but it comes right down into the broken ground at the foot of the hills, and also ascends them to a height of at least 6000 feet, whilst in the non-breeding season it may be found well into the plains far from any hills.

All nests taken by myself have been found either in evergreen forest or in deciduous forest much mixed with evergreen trees and thick undergrowth. My first nest was taken in May, 1889, and was placed in a high tree on a rocky hill-side overlooking the Laisung stream in North Cachar. The forest in which it stood was very dense evergreen, rendered even more dense and impenetrable by the great quantity of creepers and orchids, which, as usual at this elevation, some 4000 feet, ran from tree to tree and rock to rock. My camp, a collection of small grass huts, had been built in an opening cleared for the purpose in this forest, and for two or three mornings the presence of the Sparrow-Hawks had been made known to us by their loud harsh cries, and by an occasional glimpse of the birds themselves as they dashed across the open from one side to the other. It was not, however, until the third morning that we located their nesting-tree, but once we had found this, we had little difficulty in making out a black blot high up in the upper, inner branches as their nest.

Climbing to it was an easy task, for stout vines of the elephant-creeper grew right up to and past the nest, forming almost a ladder the whole way. Within a very few moments, therefore, I reached the nest, and on my arrival at that point was delighted to find five beautiful eggs, which proved to be more richly coloured than any ever taken since. The nest was so high up, at least sixty feet, that climbing down from it with the eggs to carry in one hand was harder than getting up; however, eventually the descent was accomplished and the eggs carried into safety. They were hard-set, but with a little care and patience made good specimens, although this was before the days when the use of caustic potash had become universal as an aid to cleaning incubated eggs.

Whilst we were taking these eggs, the birds behaved in the manner since proved to be habitual with them on such occasions, and much as does the Common English Sparrow-Hawk under similar circumstances. They both indulged in many expostulations and harsh cries as we clambered up the tree, fluttering about in a great state of excitement on trees some distance away, but beyond that did nothing to defend their eggs, and before we had actually got up to the nest, both parents had flown off, though we could still hear them calling in the distance.

The nest used was an old one of *Corvus macrorhynchus*, the Jungle Crow, and, judging from subsequent experience, the nests of these birds seem to be the favourite ones for these little Hawks to lay their eggs in. In both North Cachar and the adjoining hill-ranges this Crow builds extraordinarily neat nests, using moss almost entirely for the outer parts and a good lining of roots and fern-stalks for the inside. The nests form very stout, warmly-built cups, with a deep, well-shaped receptacle for the eggs, and are far superior in finish to the nests of these same Crows elsewhere. So far as could be seen, all the Sparrow-Hawks ever did to the nests when adopting them for their own use, was to add a few green leaves to the lining; further repairs were generally unnecessary, the nests having been so well and compactly built in the first instance.

This, my first nest, was obtained in the highest part of the bird's breeding-range, but my next one was found at the lowest elevation of its breeding haunts, and formed in every way also a contrast to it. It was taken in a patch of deciduous forest, dividing two strips of mustard cultivation on the banks of the Kopili stream, and the elevation could not have been over 300 feet above sea-level. The trees at the time we discovered the nest were still very bare, and high up in one of them, conspicuous for a great distance in every direction, was an old nest of a Brahminy Kite (*Haliastur indus*). I had passed this nest several times on previous days, but it was so obviously old and battered, that I had not troubled to examine it until my attention was attracted to it by seeing a Sparrow-Hawk settle on the tree, and finally seat herself on the nest. A closer inspection then showed that the Hawks had repaired the inside of the nest quite neatly and had added a lining of small twigs and leaves, in which reposed four slightly incubated eggs.

Dr. H. N. Coltart took several clutches of this little Hawk's eggs in Margherita, Assam, but, so far as I know, all these were taken in the broken hilly ground north and east of Margherita and none in the actual plains, where, however, the bird was common enough in the cold weather. A clutch of five was found by him on two occasions, but here, as elsewhere, the normal full clutch consisted of either four or three eggs.

Two nests which were taken whilst I happened to be staying with Dr. Coltart were both stick nests of some kind, and looked to me more like those of the Imperial Pigeon than those of any other bird with which I am acquainted; they were comparatively massive and well-lined with small twigs, leaves, and scraps of dead moss, in addition to which some of the twigs used were themselves well-covered with lichen and moss. Presumably, therefore, the birds had merely adopted the Pigeon's nests as a basis for their own, and had then added to them further material until the whole was massive enough to suit their tastes.

The nest taken by Mr. Mackinnon at Murree was found at over 6000 feet, and is the highest elevation of any recorded nest of this Sparrow-Hawk. It has, however, been found in the Naga Hills at greater heights than this, and certainly breeds there up to 7000 feet, if not higher. A pair were breeding in some forest above Henema when I visited this place in April, 1887, though I was unable to find the nest. Both birds were very excited, and continued calling to each other whilst I was there, but there were no roads, rivers, or open places in the vicinity in which we could have made a special search, and the undergrowth elsewhere was so densely matted that, once we left the so-called bridle-path which ran from one village to another, it was almost impossible to move.

Other nests occupied by these birds, and from which I have taken eggs, have been those of a Thrush of some kind, probably *Cochoa*, built in a tangle of creepers on a big tree, and of a Green Imperial Pigeon (*Carpophaga ænea*) in a pepul-tree (*Ficus religiosa*).

I also once found it breeding on the top of an old broken tree-stump, about forty feet from the ground, in a nest of twigs, roots, and grass, but whether this nest had been built by the Hawks themselves or not it was impossible to say. With this possible exception, there is nothing at present to show that this Sparrow-Hawk ever builds its own nest, but it is difficult to say to what kind of bird the nest could have belonged if not built by the Hawks. It was very roughly built and most flimsy, both in appearance and to handle.

Over the greater part of its breeding-range the Himalayan Sparrow-Hawk lays principally in the latter half of April and the first half of May, but in the lower elevations many birds lay in early April, and I have taken a hard-set clutch of three eggs on the 1st of that month. On the other hand, above 3500 feet they sometimes do not commence to lay until the beginning of June or end of May.

They desert their nests very readily, and I have known birds leave eggs which had not been touched, even when they showed traces of incubation. At the same time I have known birds stay on after the first egg had been laid, taken out of the nest and examined, and the second and third also looked at, before the final one was laid and the whole clutch taken.

They lay on alternate days as a rule, but very often two days may elapse between the laying of the first and second eggs, and two or even three between the subsequent layings. Four eggs is perhaps the number most often laid, but very often there are only three, and five in a clutch is a rare occurrence.

In appearance the eggs are quite typical Sparrow-Hawk's eggs, but on an average are much more weakly coloured and marked than are those of our English bird. The most handsome egg I have seen (Pl. VII. fig. 6) would be considered but a poor specimen when compared with really boldly-marked clutches of *A. nisus nisus*, and the majority are but feebly marked with more or less washed-out blotches, smudgy patches, and spots varying from light sienna-brown to a rather rich vandyke-brown or dark umber. The subsidiary markings are generally rather more numerous than the primary or superficial markings, and average somewhat bigger, but in some specimens the proportions are reversed, and the subsidiary markings are almost absent. Some eggs are to all intents and purposes pure white, the few faint smudges of colour hardly showing except in a bright light, and I have seen one or two absolutely unmarked.

The coloration of the individual eggs in the same clutch is often very unequal, one or two eggs being much more freely marked than the others, or three out of four may be well-marked and the fourth almost immaculate. So, too, the character of the markings varies greatly both in clutches and in individuals of the same clutch. As a rule, they consist of large blotches and smears of colour scattered very irregularly over the whole egg, and more numerous on the larger than the smaller end; sometimes, however, they are confined to the larger end, where they may be more or less confluent; in others, again, they may be confined to wide zones round the egg. Sometimes they are very large, and consist of two or three marks only, whilst rarely they are reduced to tiny specks and blotches, and are numerous everywhere. The ground-colour is a white, almost always, when first laid, with a faint skimmed-milk tinge of bluish, but as incubation progresses this tinge dissappears, and the eggs often become stained and discoloured with reddish. Occasionally a fresh egg may be taken with a pinkish-white ground-colour, but I have seen very few such eggs.

In shape and texture they closely resemble the eggs of the European Sparrow-Hawk.

The longest and broadest eggs measure respectively 40·4 and 32·2 mm., and the shortest and most narrow 35·0 and 28·8 mm. The average of 50 eggs is 37·7 × 30·0 mm.

The Himalayan Sparrow-Hawk is, I think, more of an insect-eater than its English relation, and during the time the termites are on the wing, these form a very considerable portion of its diet. At the same time, it kills large numbers of small birds, mice and other small rodents, bats, and the smaller lizards and reptiles. I have seen the remains of the small grey flying-squirrel in one of their nests, and many remnants of comparatively large birds, such as barbets, thrushes and bulbuls. It is a most inveterate hunter after nests with the object of stealing the young, and I am sure many thousands of nestlings meet with an untimely end through this agency. Although it is such a thief, it is also capable of great speed and activity, and I have seen it actually hunt and capture the little Palm-roof Swift (*Tachornis infumatus*). On the occasion in question, these small Swifts were busy hawking up and down the Diyung stream; the heat of the day was past, and the insects of which they were in pursuit were flying high over the tops of the trees which forested the river on either side. For some time they continued thus to hunt undisturbed, but after a short time I saw a Sparrow-Hawk rush *upwards* into the air from the top of a tall tree and strike at a passing Swift. He failed, however, in his effort, and at once, without attempting any pursuit, returned to his perch. In a few minutes a second attempt was made with no better result, but a third attempt was more successful, and the fluttering, dodging little bird was seized and carried off into the tree to be devoured at leisure. About twenty minutes after this the Sparrow-Hawk was again on the watch for prey, and this time attempted far higher game. A few Spine-tails (*Chætura nudipes*) had joined the little Swifts, and as one of them dashed past overhead the Sparrow-Hawk rose at him, but by the time he had arrived at the place where he *thought* the Spine-tail should have been, this bird must have been at least two hundred yards away down the river. This was quite sufficient lesson for the Hawk, who made no more attempts to strike the bigger Swifts, but before I left the place to get back to my camp, he had caught a second Palm-roof Swift and disposed of it.

I have never seen two pairs of these Sparrow-Hawks breeding close to one another, and they probably keep very jealously to their own areas for hunting purposes. They return year after year to the same strip of forest to breed, although they may not use the same nest or the same tree, but once the breeding season is past, they range over a very much wider extent of country and may be met with a considerable distance from their own particular breeding haunts.

Accipiter virgatus virgatus. (Pl. VII. figs. 7–9.)

The Bezra Sparrow-Hawk.

The Southern Indian form of Sparrow-Hawk breeds in all the hill-ranges of that part of the continent, but appears to be more particularly common in the hill-tracts of Travancore between 2000 and 4000 feet, nesting in the immense forests of deciduous trees which are there found.

The only field-naturalist, however, who has had any success with these birds is Mr. J. Stewart, who has a marvellous collection of South Indian Raptores, including a wonderful series of the eggs of this Sparrow-Hawk.

According to Mr. Stewart, the Bezra breeds principally in the deserted nests of other birds, repairing them to suit its own taste, and lining them with green leaves and supple twigs. Sometimes, however, it would appear to build a new nest entirely for itself; but, owing to the way it repairs and builds on to old nests, it is often difficult to say whether or not it has made use of another bird's work.

They lay from the middle of January up to the end of April, but principally in January and February.

As with so many other southern forms of birds which have closely allied subspecies in the north, the Bezra Sparrow-Hawk lays fewer eggs than its representatives in the Himalayas. Three seems to be the normal clutch, both four and two being sometimes found*.

In general appearance the eggs are like very clean, lightly, but brightly-marked specimens of the Common Sparrow-Hawk's eggs. I have seen no really heavily-marked eggs, but, on the other hand, nearly white or very faintly-marked eggs are comparatively common.

They vary in length between 34·4 and 38·6 mm., and in breadth between 27·8 and 31·4 mm., the average of 20 eggs being 36·8 × 29·7 mm.

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* In a letter just received from Mr. Stewart he informs me that he has this year taken a nest of this Sparrow-Hawk containing five eggs. Of these, however, two were abnormally small.

Accipiter virgatus confusus.

The Luzon Sparrow-Hawk.

The only record I can find of the breeding of this Sparrow-Hawk within Indian limits is Wickham's account of two nests taken by him in the Andamans (Bombay Nat. Hist. Journal, xix. p. 992).

He here writes:—

"House-crows not having been sentenced to transportation, an untidy collection of sticks in the fork of a rain-tree, although overhanging a road to a small village, attracted my attention early in March this year; it contained nothing, but was noted for future inspection. On the 21st March I visited the spot again and found it contained two fresh eggs of the Bezra Sparrow-Hawk; thinking this was probably the full complement for the Andamans, as birds who should know better often play this trick on collectors here, I took them, but secured another egg in the nest on the 28th, my first bit of good fortune.

"The jungle round here was a favourite hunting-ground of mine, and I had placed nesting-boxes for the Andaman Shama in it. I had also noticed another stick-nest in a rain-tree not one hundred yards from the nest I had taken the Sparrow-Hawk's eggs from, and it was during one of my subsequent visits that I found my little pair of Hawks were repairing this old home of theirs, from which I subsequently (28th April) took four eggs slightly incubated.

"The pluck of these little Hawks in defence of their nests is wonderful as they swoop down on the marauder, and once one struck my topee as I was watching the man at the nest, both male and female taking part in the attack; but they also have patience, as this pair returned to their first nest and hatched out their brood on the 14th June."

Two eggs of the second clutch referred to above by Mr. Wickham are now in my collection. Of these, one is comparatively well-marked with large and fairly bold blotches of reddish vandyke-brown, sparsely and irregularly scattered over the whole of the egg, others underlying these are smaller and rather more numerous, and in colour are a pale neutral tint and washed-out sienna. The second egg is almost pure white, but if closely examined shows a few very faint markings of the palest sienna. The two eggs measure 34·9 × 28·6 mm. and 33·1 × 28·0 mm.

Accipiter gularis.

The Japanese Sparrow-Hawk.

This Sparrow-Hawk is only found in India as a rare straggler, but does not, of course, breed there.

I have had three clutches of its eggs from the late Alan Owston, taken on Fuji in April. The number of eggs in each clutch was five, and all three clutches are very similar in appearance, being rather profusely covered with ill-defined blotches of light brown, here and there mixed with darker specks, lines, and other irregular markings of deep vandyke-brown. In most eggs the markings are distributed unevenly over the whole surface of the egg, but in some they were more numerous at the larger end, in two at the smaller, while in one egg they coalesce to form a deep band round the centre. In length they vary between 38·1 and 41·4 mm., in breadth between 31·5 and 32·5 mm., and they average 39·9 × 32·1 mm.

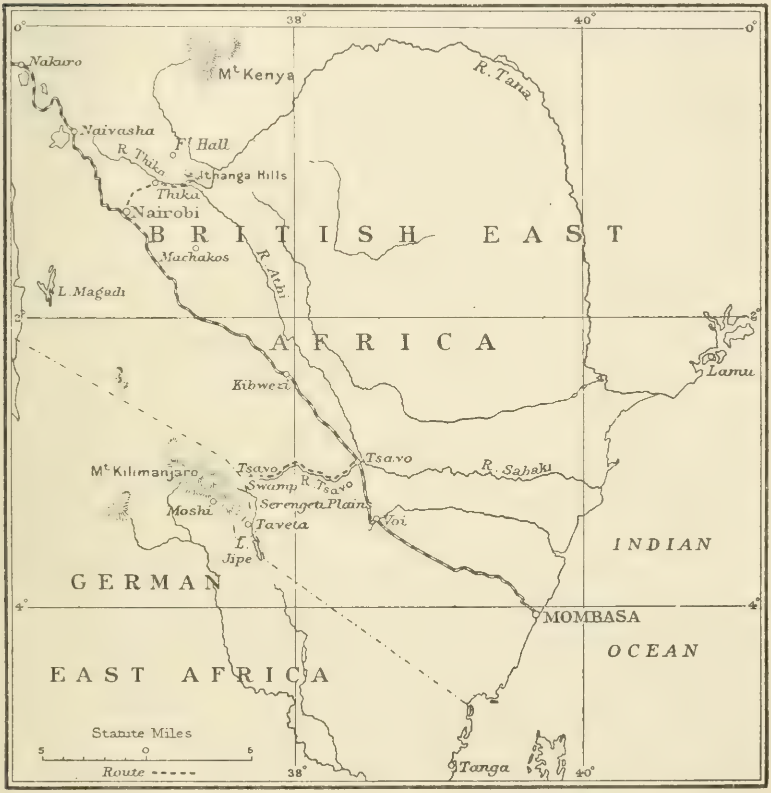
XIX.—*A Collection of Birds from two Districts of British East Africa.* By C. W. Mackworth-Praed, Lieut. Scots Guards, M.B.O.U.

(Text-figure 3.)

In July 1914 I was going on a shooting-trip up the Tsavo River after certain kinds of big-game animals, and I thought I might as well collect birds too. It was my first experience of African birds, and I knew nothing whatever about them. Consequently I collected as many different species as possible, and lost the opportunity of getting a series of several uncommon birds I met with. Such birds, for instance, were *Caprimulgus donaldsoni, Argya keniana, Lybius senex, Irrisor damarensis granti, Nectarinia nectarinioides*, and others.

As larger game was the chief object, my collecting was limited by the capabilities of my one native bird-skinner, and, as silence was essential, a very great deal of the collecting was done with a ·22 rifle, with which, of course, only the larger birds could be shot. Only at certain times, such as when we were leaving a camp, could I use a shot-gun.

Text-figure 3.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Tsavo
R. Sabaki
Mt Kilimanjaro
Tsavo
Swamp
R. Tsavo
Serengeti Plain
Moshi
Taveta
Voi
L. Jipe
INDIAN OCEAN
GERMAN EAST AFRICA
4°
4°
MOMBASA
Statute Miles
5 0 5
Route -----
38°
Tanga
40°

Sketch-map of East Africa, showing Mr. Mackworth-Praed's route and localities.

We left Tsavo station on July 20th, and trekked slowly up the river towards Kilimanjaro through very thick bush-country. After ten days we came to more open scattered bush-country, which is the western edge of the Serengeti Desert. It was the dry season at the time, and the river was the only water left. We then followed up the most easterly of the Tsavo head-streams, till we reached a swamp only a mile or two from the German border. I do not know the proper name of this swamp, if it has one, but I have referred to it as Tsavo Swamp. We remained there until it became necessary to leave the district hurriedly—I may say very hurriedly—on August 12th. We reached Tsavo again on the 17th.

A week or two later I left Nairobi for Thika, some 30 miles away. After collecting there for a few days, a German raid occurred at the other end of the country towards the Victoria Nyanza. When that was over, I returned to Thika, and camped by the Thika River, in the Ithanga Hills, for nearly a month. I then had to return to Europe.

No new birds were met with, but the localities are new for several species—notably for *Aquila pomarina*, the Spotted Eagle, which has not previously been recorded from Africa south of the Sahara.

During the whole time I only saw three of our northern European migrants—the Common Swallow, Common Sandpiper, and Wheatear; while only five others could be called even occasional visitors to Europe—*Aquila pomarina*, *Buteo desertorum*, *Milvus ægyptius*, *Ardeola ralloides*, and *Merops apiaster*.

I thought that African birds nested at any time of year, more or less, but I certainly struck an unfortunate time, as I only saw four species actually breeding. These were *Hieraaëtus spilogaster* (advanced) and *Pterocles decoratus* (beginning) on the low ground in late July and early August; and *Hirundo smithi* and *Stephanibyx coronatus*, both with young, in the highlands in late August.

I was also surprised at the few birds which were common to the high and low countries. Only 30 species out of the 184 secured occurred in both districts, and several of these were birds of prey or water-birds, to whom the change in altitude would not be of great account. Doubtless there were others which I did not happen to see in both places, although they occurred there, but they were not noticeable at that time of year. The altitude of the Tsavo River is roughly 1800–2000 ft., that of Thika 5000 ft. The following is a list of the species I saw in both places :—

Dicrurus adsimilis.
Oriolus larvatus.
Buphaga erythrorhyncha.
Dinemellia dinemelli.
Anthothreptes zambesiana.
Chalcomitra hunteri.
Dryoscopus cubla hamatus.
Lanius cabanisi.
Tchitrea viridis.
Hirundo smithi.
Campethera nubica.
Centropus superciliosus.
Melittophagus pusillus.
Rhinopomastus cyanomelas schalowi.
Lophoceros nasutus.
Upupa africana.
Coracias caudatus.
Poliohierax semitorquatus.
Terathopius caudatus.
Aquila rapax.
Accipiter minullus.
Serpentarius serpentarius.
Ardea goliath.
Hagedashia hagedash erlangeri.
Balearica regulorum gibbericeps.
Otis kori struthiunculus.
Tringoides hypoleucus.
Stephanibyx coronatus.
Streptopelia capicola.
Pternistes leucoscepus infuscatus.
Francolinus sephæna grantii.

I have to thank the authorities of the Natural History Museum for allowing me to work out the collection there, also Mr. Wells, of the Bird-Room, for much assistance. Particularly also I am indebted to Mr. W. L. Sclater for very kind assistance and advice.

Corvultur albicollis.

Corvus albicollis Latham, Ind. Orn. 1790, p. 151 [Africa].
Corvultur albicollis Reichw. Vög. Afr. ii. 1903, p. 640.
♂. Tsavo River. 21st July.
♂. ,, 27th July. Wing 445 mm.

A pair of White-necked Ravens generally appeared round the camp if we stayed more than a day at any place. Seen on the Tsavo and the Thika rivers.

Dicrurus adsimilis divaricatus.

Dicrurus adsimilis divaricatus Oberh. P. U.S. Nat. Mus. xxviii. 1905, p. 920 [Angola].

♀. Tsavo. 19th July. Wing 121 mm.
♀. Tsavo River. 27th July. ,, 113 mm.
♀. Ithanga Hills. 2nd October. ,, 123 mm.

Iris red ; bill and legs black.

Common in both localities.

The Ithanga Hills bird has a rather stronger blue gloss on the back than the two low-country birds.

Oriolus larvatus.

Oriolus larvatus Licht. Verz. Doubl. 1823, p. 20 [Kaffraria].

Oriolus larvatus rolleti Reichw. Vög. Afr. ii. 1903, p. 659.

♂ ♀ ad. Tsavo River. 27th July. Wing, ♂ 126,
♀ 135 mm.
♂ imm. Ithanga Hills. 24th Sept. ,, 132 mm.

Iris red ; bill pinkish brown ; legs black.

Only seen occasionally, in pairs.

There seems to be a good deal of doubt about the identity of the East African Orioles. Lönnberg (K. Sv. Vet.-Ak. Handl. xlvii. 1911, No. 5, p. 97) gives a very good account of what he found in the case of *O. l. rolleti* and *O. l. percivali*. Personally, I shot a pair on the Tsavo, sitting on the same bush, where Orioles were not at all common, and the male should be *O. l. rolleti* and the female *O. l. larvatus*. Shelley, in the 'Birds of Africa,' calls them all *O. larvatus*, and that would at present seem the only thing to do.

Buphaga erythrorhyncha.

Tanagra erythrorhyncha Stanley in Salt's Trav. Abyssinia, App. 1814, p. 59.

Buphagus erythrorhynchus Reichw. Vög. Afr. ii. 1903, p. 667.

♂. Nairobi. 22nd August. Wing 120 mm.
o. Thika. October. ,, 115 mm.

The Red-billed Oxpecker was also seen on the Tsavo. I have observed them taking ticks from rhinos, buffaloes, and domestic cattle. I noticed that they always took alarm and flew up when one approached a rhino, but took no notice of one when they were on cattle. I have heard this commented on as an instance of the bird's cleverness and care for its host. Personally, I prefer the more prosaic explanation that the cattle-attending flocks get used to the presence of man.

Spreo superbus.

Lamprotornis superbus Rüpp. Syst. Uebers. 1845, pp. 65, 75, pl. 26 [Shoa].

Spreo superbus Reichw. Vög. Afr. ii. 1903, p. 674.

♂. Tsavo River. 25th July. Wing 121 mm.
♂. ,, 17th August. ,, 116 mm.

Iris cream-colour ; bill and legs black.

A few flocks of this Starling were seen ; it was not common.

Lamprocolius chalybæus.

Lamprotornis chalybœus Hempr. & Ehrenb. Symb. Phys. fol. Y, 1828, pl. 18 [Abyssinia] ; Shelley, B. Afr. v. pt. i. 1906, p. 73.

♂. Ithanga Hills. 2nd October. Wing 140 mm.
♀. ,, 3rd October. ,, 128 mm.

Iris orange ; bill and legs black.

Cosmopsarus regius.

Cosmopsarus regius Reichw. Orn. Centralb. 1879, p. 108 [Massa, Tana River] ; id. Vög. Afr. ii. 1903, p. 713.

♂. Tsavo River. 11th August. Wing 141 mm.

Iris white ; bill and legs black.

The Golden-breasted Glossy Starling was met with in small flocks in the desert bush-country. It was exceedingly shy but not rare.

Lamprotornis purpuropterus.

Lamprotornis purpuropterus Rüpp. Syst. Uebers. 1845, pp. 64, 75, pl. 25 [Shoa] ; Reichw. Vög. Afr. ii. 1903, p. 710.

○. Tsavo River. 18th August. Wing 160 mm.

Iris white; bill and legs black.

This Glossy Starling was common on the Tsavo. It usually kept close to the river, and was not seen in the thorn-bush country away from water.

Creatophora carunculata.

Gracula carunculata Gmel. Syst. Nat. i. 1788, p. 399 [Cape].

Creatophora carunculata Shelley, B. Afr. v. pt. i. 1906, p. 123.

♂. Tsavo Swamp. 6th August. Wing 124 mm.

Iris dark brown; bill pinkish horn-colour; feet dark brown.

One very large flock of the Wattled Starling was met with.

Ploceus (Hyphantornis) bojeri.

Hyphantornis bojeri Finsch & Hartl. in Cab. von der Decken Reise, iii. 1869, p. 32 [Zanzibar].

Ploceus bojeri Hartert, Nov. Zool. 1907, p. 499.

♂ ♀ ad. Tsavo River. 15th August. Wing, ♂ 76, ♀ 70 mm.

Iris red-brown; bill and legs light brown.

Not uncommon on the Tsavo.

Ploceus ocularius suahelicus.

Ploceus ocularius suahelicus Neum. J. f. O. 1905, p. 339 [Usambara].

♀ imm. Thika. 29th Augnst. Wing 71 mm.

Iris dark brown; bill light brown; legs greenish brown.

Anaplectes melanotis.

Ploceus melanotis Lafr. Rev. Zool. 1839, p. 20 [Senegal].

Anaplectes melanotis Shelley, B. Afr. iv. pt. ii. 1905, p. 338, pl. xxxvii. figs. 2 & 3.

♂. Tsavo River. 2nd August. Wing 85 mm.

Iris brown; bill red; legs brown.

Dinemellia dinemelli.

Textor dinemelli Rüpp. Syst. Uebers. 1845, pp. 72, 76, pl. 30 [Shoa].

Dinemellia dinemelli Reichw. Vög. Afr. iii. 1904, p. 7.

♂ ♀. Tsavo River. 1st August. Wing, ♂ 118, ♀ 122 mm.

Iris dark brown; bill and legs black.

This Weaver-Finch was met with in small flocks over the whole of the desert country. It was very common but shy, and it has an almost Parrot-like cry.

Textor albirostris intermedius.

Textor intermedius Cab. J. f. O. 1868, p. 413 [R. Kisuani].

Textor albirostris intermedius Reichw. Vög. Afr. iii. 1904, p. 4.

♀. Tsavo River. 10th August. Wing 112 mm.
♂. „ 15th August. „ 119 mm.

♂. Iris dark brown; bill red; legs slate-colour.

♀. Iris dark; bill red at the base, black at the tip; feet black.

Base of under side of primaries dirty white.

One or two large flocks seen up the Tsavo.

Uræginthus bengalus.

Fringilla bengalus Linn. Syst. Nat. 10th ed. 1758, p. 182 [Benguela].

Uræginthus bengalus Reichw. Vög. Afr. iii. 1904, p. 207.

♂. Thika. 1st September. Wing 52 mm.

Iris red-brown; bill purple; legs light brown.

I have not attempted to go into the subspecies of this bird. Zedlitz (J. f. O. 1911, pp. 604–606) gives a list of twelve, and Mearns has described another from close to this locality, based on the female (Smiths. Misc. Coll. 56, No. 20, p. 6).

I saw several of these birds, generally in small parties near native huts.

Granatina ianthinogastra ianthinogastra.

Uræginthus ianthinogaster Reichw. Orn. Centralb. 1879, p. 114 [Massa, Tana River].

Granatina ianthinogastra ianthinogastra Mearns, Smiths. Inst. Misc. Coll. vol. 61, No. 9, p. 3.

♂. Tsavo Swamp. 7th August. Wing 56 mm.

Iris red; bill red; legs dark.

A very brightly-coloured male; head strongly rufescent.

Uroloncha caniceps.

Pitylia caniceps Reichw. Orn. Centralb. 1879, p. 139 [Nassa, Tana River].

Uroloncha caniceps Shelley, B. Afr. iv. pt. i. 1905, p. 151.

♂. Tsavo River. 2nd August. Wing 59 mm.

Iris brown; bill and legs slate-colour.

Lagonosticta rhodoparia.

Lagonosticta rhodopareia Heugl. J. f. O. 1868, p. 16 [Keren, Bogos-Land]; Reichw. Vög. Afr. iii. 1904, p. 200.

Lagonosticta rhodoparia O.-Grant, Ibis, 1908, pp. 272–274.

♂. Ithanga Hills. 8th October. Wing 49 mm.

Iris red; bill and legs dark.

Common.

Spermestes cucullatus.

Spermestes cucullatus Swains. B. W. Afr. i. 1837, p. 201 [Senegambia]; Lönnberg, K. Sv. Vet.-Ak. Handl. xlvii. 1911, No. 5, p. 104.

♂. Thika. 27th August. Wing 52 mm.

Not uncommon, often in the same sort of places as *Uræginthus bengalus.* This bird has a distinct metallic-green wash to the feathers of the sides, but this is not so pronounced as in the more western examples of the species.

Quelea sanguinirostris æthiopica.

Ploceus æthiopicus Sundev. Œfv. Vet.-Akad. Förh. 1850, p. 126.

Quelea sanguinirostris æthiopica, Reichw. Vög. Afr. iii. 1904, p. 109.

♀. Tsavo River. 3rd August. Wing 68 mm.

Iris dark brown; bill red; legs light brown.

This Weaver-Finch was met with in very large flocks in the desert country.

Euplectes capensis xanthomelas.

Euplectes xanthomelas Rüpp. Neue Wirb., Vög. 1835, pp. 94, 101 [Abyssinia].

Pyromelana capensis xanthomelæna, Stark & Sclat. Fauna S. Africa, i. 1900, p. 133.

♀. Thika. 27th August. Wing 78 mm.

Iris dark brown; bill light and dark brown; legs light brown.

Drepanoplectes jacksoni.

Drepanoplectes jacksoni Sharpe, Ibis, 1891, p. 246, pl. v. [Masailand].

Coliuspasser jacksoni Shelley, B. Afr. iv. pt. i. 1905, p. 55.

♂. Thika. 5th September. Wing 86 mm.

Iris dark brown; bill and legs light brown.

Several large flocks of Jackson's Weaver-Finch were met with in the Kikuyu shambas. No full-plumaged males were seen. The bird obtained is in completely brown dress.

Fringillaria tahapisi.

Emberiza tahapisi Smith, Rep. Exped. C. Afr., App. 1836, p. 48 [Natal].

Fringillaria tahapisi Shelley, B. Afr. iii. 1902, p. 164.

♂. Tsavo River. 15th August. Wing 75 mm.

Iris dark brown; bill and legs light brown.

The distinction between this species and *F. septemstriata* seems to be very slight. This particular bird has not very much red on the webs of the primaries, and is therefore, according to Shelley, *F. tahapisi*; but there appear to be other cases less easily distinguishable.

Emberiza poliopleura.

Fringillaria poliopleura Salvad. Ann. Mus. Civ. Genov. xxvi. 1888, pp. 269, 537 [Shoa]; Shelley, B. Afr. iii. 1902, p. 149, pl. xxiii. fig. 1.

♀. Tsavo River. 3rd August. Wing 76 mm.
♂. ,, 15th August. ,, 75 mm.

Iris dark brown; bill and legs light brown.

Quite common and tame in thick bush-country.

Emberiza flaviventris.

Emberiza flaviventris Stephens, Gen. Zool. ix. pt. 2, 1815, p. 374 [Cape]; Shelley, B. Afr. iii. 1902, p. 143.

♀. Thika. 5th September. Wing 82 mm.
♂. Ithanga Hills. 5th October. ,, 85 mm.

Iris dark brown; bill dark; legs light brown.

This species was common on the high ground, its place in the desert country being taken by the last species, *E. poliopleura*.

Passer griseus gongonensis.

Pseudostruthus gongonensis Oustalet, Le Nat. 1890, p. 274 [Gongoni, nr. Mombasa].

Passer crassirostris Shelley, B. Afr. iii. 1902, p. 255 [part.].

Passer griseus gongonensis Zedlitz, J. f. O, 1911, p. 36.

♂. Tsavo. 19th July. Wing 95 mm.
♂. Tsavo River. 24th July. ,, 96 mm.

Iris dark brown; bill dark; legs light brown.

Oustalet's Sparrow was common close to Tsavo Station.

Petronia pyrgita massaica.

Gymnoris pyrgita massaica Neum. Bull. B. O. C. xxi. 1908, p. 70 [Shendi, White Nile].

♀. Tsavo River. August. Wing 86 mm.

Mirafra fischeri.

Megalophonus fischeri Reichw. J. f. O. 1878, p. 266 [Rabai, Mombasa].

Mirafra fischeri Shelley, B. Afr. iii. 1902, p. 43, pl. xvi. fig. 2.

♂. Ithanga Hills. 1st October. Wing 74 mm.

Iris dark brown; bill dark; legs flesh-colour.

Fischer's Bush-Lark was common in the Ithanga Hills district. It flies up to a point in the air like a Pipit, and then descends. It makes a loud clapping noise as it rises.

Macronyx croceus.

Alauda crocea Vieill. Nouv. Dict. Hist. Nat. i. 1816, p. 365.

Macronyx croceus Shelley, B. Afr. iii. 1902, p. 4.

♀.	Nairobi.	22nd August.	Wing 94 mm.
♀.	Ithanga Hills.	29th August.	,, 95 mm.
♂.	Thika.	30th August.	,, 91 mm.

Iris dark brown ; bill dark ; legs light brown.

The Yellow Long-claw was common in short grass, but was not seen in the desert country.

Motacilla vidua.

Motacilla vidua Sundev. Œfv. Vet.-Akad. Förh. 1850, p. 128 [N.E. Africa] ; Shelley, B. Afr. ii. 1900, p. 268.

♂.	Tsavo.	17th August.	Wing 94 mm.
♀.	Thika.	27th August.	,, 92 mm.

Iris dark brown ; bill and legs black.

Seen in any suitable places.

There was another and smaller Wagtail at Thika, living on the stones in fast streams. I shot one or two, but they were carried away by the current. It was probably *M. longicauda.*

Anthothreptes collaris zambesiana.

Anthodiæta zambesiana Shelley, Monog. Nectar. 1876, p. 343, pl. iii. fig. 3 [Zambesi].

Anthreptes collaris hypodilus Reichw. Vög. Afr. iii. 1905, p. 443 [part.].

2 ♂.	Tsavo River.	13th August.	Wing 55, 53 mm.
♀.	Thika.	27th August.	,, 53 mm.

Iris dark brown ; bill and legs black.

In 'The Ibis,' 1908, p. 286, Ogilvie-Grant points out the distinctness of this bird from the western *A. hypodila*, though both Shelley and Reichenow put them together.

Anthothreptes longmari orientalis.

Anthreptes orientalis Hartl. J. f. O. 1880, p. 213 [Lado].

Anthreptes longmari orientalis Zedlitz, J. f. O. 1916, p. 73.

♀.	Tsavo River.	13th August.	Wing 65 mm.
♀ imm.	,,	18th August.	,, 63 mm.

Iris dark brown ; bill and legs black.

Chalcomitra hunteri.

Cinnyris hunteri Shelley, P. Z. S. 1889, pl. xli. fig. 2 [Useri River].

Chalcomitra hunteri Reichw. Vög. Afr. iii. 1905, p. 462.

2 ♂. Tsavo River. 10th August. Wing 70, 70 mm.
2 ♂ imm. „ 13th & 15th August. „ 68, 67 mm.
♀. „ 15th August. „ 64 mm.
♀. Thika. 27th August. „ 66 mm.

Iris dark; bill and legs black.

Hunter's Sunbird was very common on the Tsavo. I cannot positively identify the Thika bird; but it was with a red-throated male, and it is not *C. gutturalis*, as its primary-coverts have no white.

Chalcomitra kirki.

Cinnyris kirki Shelley, Monog. Nectar. 1876, p. 273, pl. 85 [Zambesi].

Chalcomitra kirki Reichw. Vög. Afr. iii. 1905, p. 460.

♂. Ithanga Hills. 4th October. Wing 65 mm.

Iris dark brown; bill and legs black.

Cinnyris venustus falkensteini.

Cinnyris falkensteini Fischer & Reichw. J. f. O. 1884, p. 56 [Masai].

Cinnyris venustus falkensteini Reichw. Vög. Afr. iii. 1905, p. 464.

♂. Thika. 5th September. Wing 55 mm.

Iris dark brown; bill and legs black.

Cinnyris mariquensis microrhynchus.

Cinnyris microrhynchus Shelley, Monogr. Nectar. 1876, p. 219, pl. 67 [Zanzibar].

Cinnyris mariquensis microrhynchus Reichw. Vög. Afr. iii. 1905, p. 481.

♂. Tsavo River. 23rd July. Wing 55 mm.
♂. „ 15th August. „ 54 mm.

Iris hazel; bill and legs black.

Drepanorhynchus reichenowi.

Drepanorhynchus reichenowi Fischer, J. f. O. 1884, p. 56 [Naivasha].

Nectarinia reichenowi Shelley, B. Afr. ii. 1900, p. 28.

♂. Thika. 5th September. Wing 73 mm.

Reichenow's Sunbird was only seen on one occasion, by the side of a papyrus-swamp.

Iris dark brown; bill and legs black.

Nectarinia melanogaster nectarinioides.

Cinnyris nectarinioides Richmond, Auk, xiv. 1897, p. 158 [Kilimanjaro].

Nectarinia nectarinioides Reichw. Vög. Afr. iii. 1905, p. 496.

♂ ♀. Tsavo River. July. Wing, ♂ 84, ♀ 48 mm.

The Long-tailed Sunbird was quite common in the thick bush-country.

This species appears to be rather a rarity in collections. Although it does differ in size and in the amount of yellow in the pectoral tufts from *N. melanogaster* of Fischer & Reichenow, I should not be surprised to find that the latter was merely a large and brightly-coloured form. Certainly the specimens procured by Hunter in the Teita country are this form, and not, as supposed, typical *N. melanogaster*. Consequently I am considering this bird as a subspecies of *N. melanogaster*.

The female, which does not appear to have been described, answers exactly to Reichenow's description of *N. melanogaster*, but is smaller. Wing 48 mm.; culmen 15; tail 35; tarsus 13.

There is also a bird in the Museum, a male, from the Juba River, in southern Abyssinia, which is very like this species, but has no trace of a yellow pectoral tuft. This may be *N. erlangeri* Reichw., but is some way south of the locality given for that species; so it would seem that there is a complete gradation from the large yellow-tufted bird of Lake Natron to the tuftless bird of southern Abyssinia.

Nectarinia erythrocerca ?

Nectarinia erythrocerca Heugl. SB. Ak. Wien, 1856, p. 272 [White Nile]; Hartl. Orn. W.-Afr. 1857, p. 270.

♀. Thika. 1st September. Wing 62 mm.
♀. Ithanga Hills. 1st October. „ 61 mm.

I am very doubtful as to what these birds really are. The above species has only been found in Uganda, except for two instances in the Rift Valley (*Jackson*), also females. My birds are very yellow underneath, streaked with black, and with small, much-curved bills. They agree exactly with females of this species from Uganda.

The only other possibilities appear to be:

Cinnyris mariquensis suahelicus Reichw., in which the bill is much too large; and

Cinnyris mariquensis osiris Reichw., of which there are four specimens in the Museum from East Africa, and which appear to differ from typical *C. m. osiris* in that the red pectoral band of the males is very much darker.

In both these, however, the female is too light in colour, and in the latter the tail is too short, 41 mm. against 45 of my birds. I did not see a male in either case. *C. m. microrhynchus* is a still smaller bird.

Zosterops senegalensis flavilateralis.

Zosterops flavilateralis Reichw. J. f. O. 1892, p. 192 [E. Africa].

Zosterops senegalensis Shelley, B. Afr. ii. 1900, p. 173 [part.].

♂. Tsavo River. 3rd August. Wing 54 mm.

Iris, bill, and legs dark.

Ægithalus musculus.

Ægithalus musculus Hartl. Orn. Centralb. 1882, p. 91 [Lado].

Anthoscopus musculus Reichw. Vög. Afr. iii. 1905, p. 525.

♀. Tsavo Swamp. 7th August. Wing 48 mm.

Iris brown; bill dark; legs slate-colour.

Parus thruppi.

Parus thruppi Shelley, Ibis, 1885, p. 406, pl. xi. fig. [Somaliland]; Reichw. Vög. Afr. iii. 1905, p. 517.

♀. Tsavo River. 23rd July. Wing 62 mm.

Iris brown; bill and feet black.

This bird agrees exactly with the type of *P. t. barakæ* Jackson, Ibis, 1899, p. 639; but a considerably larger series is necessary before the validity of the subspecies can be substantiated. Shelley (Birds of Africa, ii. p. 244) considers it merely a seasonal variation. Zedlitz (J. f. O. 1916, p. 80) is also very doubtful. There are only three other specimens of this Tit from East Africa in the Museum, and they are on the whole lighter in the underparts than most northern specimens; but more are required before any decision can be arrived at.

Nilaus minor.

Nilaus minor Sharpe, P. Z. S. 1895, p. 479 [Okoto, Somaliland].

Nilaus afer massaicus Neum. J. f. O. 1907, p. 393.

♀. Tsavo River. 19th September. Wing 73 mm.

Iris dark brown; bill and legs slate-colour.

Antichromus minutus.

Telephonus minutus Hartl. P. Z. S. 1858, p. 292 [Ashantee].

Antichromus minutus Shelley, B. Afr. v. pt. ii. 1912, p. 387.

♂. Thika. 27th August. Wing 76 mm.

Iris light reddish brown; legs slate-colour.

Pomatorhynchus senegalus.

Lanius senegalus Linn. Syst. Nat. i. 1766, p. 137 [Senegal].

Pomatorhynchus senegalus Reichw. Vög. Afr. ii. 1903, p. 547.

♀. Tsavo River. 28th July. Wing 84 mm.
♀. ,, 12th August. ,, 83 mm.

Iris blue or grey; bill and legs slate-colour.

The Senegal Bush-Shrike was common in open places where the grass was fairly long.

Shelley, in the 'Birds of Africa,' prefers to recognize only one form of this species, but gives eight races recognized by Neumann. Zedlitz, in the J. f. O. 1915, gives fourteen races. There seems to be diversity of opinion about the generic name also: Shelley uses *Tschagra*, Zedlitz *Harpolestes*, and other authors *Telephonus*.

Dryoscopus cubla hamatus.

Dryoscopus hamatus Hartl. P. Z. S. 1863, p. 106 [Unyamwesi].

Dryoscopus cubla hamatus Shelley, B. Afr. v. pt. ii. 1912, p. 349.

♂?	Tsavo River.	11th August.	Wing 77 mm.
♂.	Thika.	31st August.	,, 84 mm.
♀.	Ithanga Hills.	3rd October.	,, 75 mm.

Iris red; bill black; legs blue or slate-blue.

The Tsavo bird is probably wrongly sexed; it is indistinguishable from the female from the Ithanga Hills.

Laniarius funebris.

Dryoscopus funebris Hartl. P. Z. S. 1863, p. 105 [Meninga].

Laniarius funebris Shelley, B. Afr. v. pt. ii. 1912, p. 827.

o.	Tsavo River.	2nd August.	Wing 86 mm.
♀.	Tsavo Swamp.	7th August.	,, 90 mm.

Iris very dark brown; bill and legs black.

Common in the dry country.

Laniarius æthiopicus.

Turdus æthiopicus Gmel. Syst. Nat. i. pt. 2, 1789, p. 824 [Abyssinia].

Laniarius æthiopicus ambiguus Madarasz, Ann. Mus. Nat. Hung. ii. 1904, p. 205.

♀ ad. Thika. 29th August. Wing 93 mm.

Not uncommon; the bell-like note at once attracts attention. Lönnberg (K. Sv. Vet.-Ak. Handl. xlvii. No. 5, p. 91) comes to the conclusion that the subspecies, based on the amount of white on the wing, cannot be upheld.

Rhodophoneus cathemagmenus.

Laniarius cathemagmenus Reichw. J. f. O. 1887, p. 63 [Loeru, G. E. A.].

Rhodophoneus cathemagmenus Shelley, B. Afr. v. pt. ii. 1912, pl. 54. figs. 2 & 3.

♀ juv.	Tsavo River.	31st July.	Wing 90 mm.
♀ ad.	,,	2nd August.	,, 92 mm.
♂ imm.	,,	2nd August.	,, 95 mm.
♂ ad.	Tsavo Swamp.	6th August.	,, 100 mm.

Iris dark brown; bill black; legs slate-colour.

The Crimson-throated Shrike was common in the thick bush near the Tsavo River and in scattered clumps on the Serengeti Plains. It is a bird of skulking habits, creeping through thick bushes and rarely flying more than a few yards.

Chlorophoneus sulfureopectus similis.

Malaconotus similis Smith, Rep. Exp. Cent. Afr. 1836, p. 44 [N. of Kurrichaine].

Chlorophoneus sulfureopectus suahelicus Neum. J. f. O. 1905, p. 221.

Chlorophoneus similis Shelley, B. Afr. v. pt. ii. 1912, p. 427.

♀.	Tsavo River.	13th August.	Wing 83 mm.
♀.	Tsavo Swamp.	7th August.	,, 88 mm.

Iris brown; bill and legs slate-colour.

Lanius (Fiscus) cabanisi.

Lanius caudatus auct.

Lanius cabanisi Hartert, Nov. Zool. xiii. 1906, p. 404 [E. Africa].

♀.	Tsavo River.	29th July.	Wing 111 mm.
♀.	Tsavo Swamp.	3rd August.	,, 113 mm.
♂.	Thika.	5th September.	,, 112 mm.

Iris dark brown; bill and legs black.

Cabanis's Fiscal Shrike was seen in the open bush-country high up the Tsavo. Only one pair was noticed at Thika.

Lanius humeralis uropygialis.

Lanius uropygialis Reichw. J. f. O. 1905, p. 560 [Uganda].

♂. Nairobi. 22nd August. Wing 95 mm.

Iris brown; bill and legs black.

This Shrike was common on the telephone-wires crossing the streets of Nairobi.

Sigmodus retzii graculinus.

Prionops graculinus Cab. J. f. O. 1868, p. 412 [Mombasa].

Sigmodus retzii graculinus Neum. Orn. Monatsb. 1899, p. 91.

2 ♀.	Tsavo River.	21st July.	Wing 130, 124 mm.
♀ juv.	,,	25th July.	,, 120 mm.

Iris yellow; bill red at the base, tip yellow; feet red.

This bird was common in small flocks in the riverside trees. I once saw three, which I took to be males of this species, sitting one behind the other on the bough of a doum-palm, and solemnly bowing in unison to two others on another bough, who were not taking the slightest notice. Their behaviour is much more that of Starlings than of Shrikes.

Prionops cristata intermedia.

Prionops intermedia Sharpe, Bull. B. O. C. xi. 1901, p. 47 [Teita]; Neum. J. f. O. 1905, p. 219.

♂ ad. Tsavo River. 25th July. Wing 115 mm.

This Helmet Shrike was common in small flocks up to a dozen.

Shelley (Birds of Africa, v. p. 487) considers this bird is probably the adult of *P. vinaceigularis* Richmond; but as Oberholser (P. U.S. N. M. xxviii. p. 924) refers to the latter as "this very distinct species," I have adhered to Sharpe's name. Otherwise *P. vinaceigularis* has priority.

Eurocephalus rüppelli.

Eurocephalus rüppelli Bonap. Rev. Mag Zool. 1853, p. 440 [Shoa]; Reichw. Vög. Afr. ii. 1903, p. 526.

Eurocephalus anguitimens fischeri Zedlitz, Orn. Monatsb. 1913, p. 58 [Central East Africa].

♂ ♀. Tsavo River. 23rd July. Wing, ♂ 121, ♀ 125 mm.

Iris dark brown; bill black.

Rüppell's Wood-Shrike was common, and generally to be found in pairs.

German authors recognise five subspecies of this bird. I have examined the specimens in the British Museum from the whole of north-eastern Africa, and even with the aid of Zedlitz's key (J. f. O. 1915, p. 50) can find no distinctions in size or coloration which are in any way constant.

Prinia mystacea.

Prinia mistacea Rüpp. Neue Wirb. 1835, p. 110 [Abyssinia].

Prinia mystacea Reichw. Vög. Afr. iii. 1905, p. 590.

♂. Thika. 31st August. Wing 51 mm.
♂. Ithanga Hills. 8th October. „ 48 mm.

Iris reddish brown; bill dark; legs light brown.

Camaroptera griseoviridis griseigula.

Camaroptera griseigula Sharpe, Ibis, 1892, p. 158 [River Voi, Teita].

Camaroptera griseoviridis griseigula Zedlitz, J. f. O. 1911, p. 340.

♀. Ithanga Hills. 29th September. Wing 56 mm.

Iris dark brown; bill dark; legs light brown.

Calamonastes simplex.

Thamnobia simplex Cab. J. f. O. 1878, pp. 205, 221 [Zanzibar].

Calamonastes simplex Reichw. Vög. Afr. iii. 1905, p. 573.

♀. Tsavo River. 2nd August. Wing 62 mm.
♂. „ 14th August. „ 54 mm.

Iris red; bill black; legs light brown.

Cisticola chiniana cantans.

Drymœca cantans Heuglin, Ibis, 1869, p. 96.

Cisticola chiniana cantans O. Grant, Ibis, 1913, p. 605.

♂ ad. Tsavo Swamp. 4th August. Wing 66 mm.
♂ imm. Tsavo River. 13th August. „ 61 mm.

Iris dark brown; bill and legs light brown.

Common.

Œnanthe pileata.

Motacilla pileata Gmel. Syst. Nat. i. pt. 2, 1789, p. 965 [Cape of G. Hope].

Saxicola pileata A. Smith, Ill. Zool. S. Afr. Aves, 1839, pl. xxviii.

♂. Tsavo River. 31st July. Wing 88 mm.

Bill and legs black.

Not common.

Œnanthe œnanthe.

Motacilla œnanthe Linn. Syst. Nat. 1758, p. 186 [Sweden].

Saxicola œnanthe Reichw. Vög. Afr. iii. 1905, p. 723.

2 ♀. Ithanga Hills. 1st October. Wing 95, 96 mm.

Iris dark brown; bill and legs black.

Only a few Common Wheatears were seen.

Myrmecocichla æthiops cryptoleuca.

Myrmecocichla cryptoleuca Sharpe, Ibis, 1891, p. 445 [Kikuyu].

Myrmecocichla æthiops cryptoleuca Reichw. Vög. Afr. iii. 1905, p. 706.

♀.	Thika.	October.	Wing 120 mm.
♀.	Nairobi.	23rd October.	„ 112 mm.

Iris dark brown; bill and legs black.

This species was common in patches in the highlands. It was fond of open ground, and liked to sit on the top of a bush or on a telegraph-wire like a Shrike.

Erythropygia leucoptera vulpina.

Erythropygia vulpina Reichw. J. f. O. 1891, p. 62 [Teita].

Erythropygia leucoptera Reichw. Vög. Afr. iii. 1905, p. 773 [part.].

♂.	Serengeti Plains, Tsavo River.	23rd July.	Wing 68 mm.
♀.	„ „	3rd August.	„ 67 mm.

Iris black; bill dark; feet slate-colour.

This seems to be quite a recognisable race, having a richer red back and the red colour extending on to the neck; the top of the head is also darker. It is confined to the Kilimanjaro region. I can find nothing as dark in the large series of the typical race from Somaliland.

Quite common in the desert scrub.

Crateropus hypoleucus.

Crateropus hypoleucus Cabanis, J. f. O. 1878, pp. 205, 226 [E. Africa]; Reichw. Vög. Afr. iii. 1905, p. 665.

2 ⚥. Thika. 27th August. Wing 110, 108 mm.

Iris white; bill black; feet dark.

Only one small flock of this bird was met with. They were tame and noisy.

Argya keniana?

Argya keniana Jackson, Bull. B. O. C. xxvii. 1910, p. 7 [Kenya Dist.].

♀. Serengeti Plains, Tsavo River. Wing 78 mm.

I think this bird, which was quite common where it occurred, will be found to be at any rate subspecifically distinct from *Argya keniana*; but the only specimen I secured is in such bad condition that I cannot be certain. It is much redder above and below than *A. keniana*, and the forehead is a richer and darker brown. In size it is larger—wing 78 mm., against 70. It was numerous and generally in small parties in the clumps of bush and sanseveria on the edge of the Serengeti Plains. This species is distinct from the *rubiginosa-heuglini* group, in that the breast- and forehead-feathers are rounded and not pointed and streaked, though *A. heuglini* occurs in the same country.

Pycnonotus layardi.

Pycnonotus layardi Gurney, Ibis, 1879, p. 390 [Rustenberg].

♂. Thika. 26th August. Wing 93 mm.

Iris dark brown; bill and legs black.

This Bulbul was common. It has quite a nice little song. It was not seen elsewhere.

Pycnonotus dodsoni.

Pycnonotus dodsoni Sharpe, P. Z. S. 1895, p. 488 [Sillul, Somaliland]; Reichw. Vög. Afr. iii. 1905, p. 425.

♂.	Tsavo River.	27th July.	Wing 78 mm.
♂.	„	14th August.	„ 84 mm.

Iris dark brown; bill and legs black.

This Bulbul was quite common. I wonder if this is by any chance the bird which Oberholser describes as *P. layardi micrus* from the same locality, as it agrees perfectly with his description (P. U.S. Nat. Mus. xxviii. pp. 891–92). He especially mentions the white tips to the breast- and tail-feathers, which are characteristic of *P. dodsoni* and which *P. layardi* does not have.

Eurillas latirostris eugenius.

Andropadus latirostris eugenius Reichw. Vög. Afr. iii. 1904, p. 414 [Victoria Nyanza].

♀. Thika. 29th August. Wing 82 mm.

Iris dark brown; bill dark yellow; legs light brown.

Reichenow separates this subspecies by the running together of the yellow chin-stripes. In the large series in the Museum this character appears to be very variable, and I very much doubt if the subspecies can be upheld.

Campephaga nigra.

Campephaga nigra Vieill. Nouv. Dict. x. 1817, p. 50 [S. Africa]; Shelley, B. Afr. v. pt. ii. 1912, p. 205.

♂. Ithanga Hills. 24th September. Wing 100 mm.

Iris brown; bill and legs black.

Only one seen.

Graucalus pectoralis.

Graucalus pectoralis Jardine & Selby, Ill. Orn. ii. 1828, p. 57 [Sierra Leone].

Coracina pectoralis Shelley, B. Afr. v. pt. ii. 1912, p. 218.

♂. Tsavo River. 22nd August. Wing 134 mm.

Iris dark brown; bill and legs black.

Tchitrea viridis.

Muscicapa viridis S. Müll., Linn. Nat. Syst. Suppl. 1776, p. 171.

♂, white form.	Tsavo River.	27th July.	Wing	80 mm.
♂, ,,	,,	12th August.	,,	78 mm.
♂, red form.	Ithanga Hills.	3rd October.	,,	79 mm.

Iris dark; bill and legs blue.

The white phase of the Paradise Flycatcher was common on the Tsavo, living in the trees over the river; the red phase was rare. On the Thika I saw many of the red phase, but only one white.

There seems to be very considerable doubt as to the division of this group into subspecies, and so I have kept to the oldest name. The red bird has ashy-grey under tail-coverts.

Platystira peltata.

Platystira peltata Sund. Œfv. Vet.-Ak. Förh. 1850, p. 105 [Kaffraria].

Platysteira peltata Reichw. Vög. Afr. ii. 1903, p. 487.

♀. Thika. 26th August. Wing 66 mm.

Iris chocolate surrounded by white; eye-wattles red; bill and legs black.

Male by plumage. Only specimen seen; in thick forest fringing the Thika River.

Batis molitor puella.

Batis puella Reichw. Jahrb. Hamburg, 1893, p. 18.

Batis molitor puella Neum. J. f. O. 1907, p. 355.

♂. Ithanga Hills. October. Wing 59 mm.

♂. " " " 59 mm.

Both these birds are sexed as males, though one is in the chestnut-banded female dress.

Chloropeta massaica.

Chloropeta massaica Fischer & Reichw. J. f. O. 1884, p. 54 [Kilimanjaro].

Chloropeta natalensis massaica Reichw. Vög. Afr. iii. 1905, p. 465.

♀. Thika. 29th August. Wing 63 mm.

Iris dark brown; bill light brown; legs black.

Reichenow treats both this species with a brown head and the plain-headed *C. n. kenya* as subspecies of *C. natalensis*. The two species occur together on the Kikuyu Escarpment and on Kenya, in the same valley of Ruwenzori, and at Lake Kivu in the Belgian Congo. In fact, it would almost seem as if one did not occur without the other; only, according to Ogilvie-Grant in the Report of the Ruwenzori Expedition, *C. massaica* occupies the lower ground up to 6000 ft. and *C. n. kenya* ranges from 7000–10,000 ft. The question then arises: "Is it possible to maintain a 'geographical' race on a difference of 1000 ft. or so in elevation?" I should personally consider it a better division than mere distance; but it is a point of interest. As, however, *C. massaica* is so distinct from *C. natalensis*, it would appear to be best to regard it as a separate species.

Muscicapa cærulescens.

Butalis cærulescens Hartlaub, Ibis, 1865, p. 268 [Natal].

Muscicapa cærulescens O.-Grant, Ibis, 1917, p. 85.

♂ ad. Ithanga Hills. 2nd October. Wing 81 mm.

Iris dark brown; bill and legs dark.

Dioptrornis fischeri.

Dioptrornis fischeri Reichw. J. f. O. 1884, p. 53 [Meru Mts., Massai].

♀. Nairobi. 22nd August. Wing 90 mm.

Iris dark brown; bill blue; legs black.

Bradyornis murinus.

Bradyornis murinus Hartl. & Finsch, Vög. Ost-Afr. iv. 1870, p. 866 [Kakonda]; Ogilvie-Grant, Ibis, 1913, pp. 634, 636.

♂.	Thika.	26th August.	Wing 95 mm.
♀.	,,	29th August.	,, 102 mm.
♂ imm.	,,	1st September.	,, 91 mm.

Iris dark brown; bill and legs black.

Very common on one small piece of ground at Thika; not seen elsewhere.

Melænornis ater tropicalis.

Melænornis ater tropicalis Neum. J. f. O. 1900, p. 256 [S. Ukamba].

♀. Tsavo River. 27th July. Wing 102 mm.

Iris dark brown; bill and legs black:

This species was not uncommon on the Tsavo, keeping very much in the bushes.

Psalidoprocne holomelæna.

Hirundo holomelas Sund. Œfv. Vet.-Ak. Förh. 1850, p. 108 [Port Natal].

Psalidoprocne holomelæna massaica Neumann, Orn. Monatsb. xii. 1904, p. 144 [E. Africa].

♂. Thika. 27th August. Wing 96 mm.
♀. ,, 3rd October. ,, 100 mm.

Iris dark brown; bill black; legs light brown.

A weak-flying species, travelling across country in fair-sized flocks.

I can see no difference in size or colouring between birds from South and East Africa. In both localities the wing-measurement varies from under 100 to over 110 mm.

Hirundo monteiri.

Hirundo monteiri Hartl. Ibis, 1862, p. 340, pl. xi. [Angola]; Reichw. Vög. Afr. ii. 1903, p. 416.

2 ♀. Ithanga Hills. 8th Oct. Wing 141, 143 mm.
3 ♂. ,, 9th Oct. ,, 133, 140, 142 mm.

Iris dark brown; bill and legs dark.

Monteiro's Swallow was common and generally high-flying. It was readily distinguishable on the wing from the last-named species by the larger size and by the greater amount of white under the wing.

Two of these birds have very little trace of white on the tail-feathers. This bird is undoubtedly a southern and eastern form of *H. senegalensis*, but they appear to occur together in certain parts of their range.

Hirundo emini.

Hirundo emini Reichw. J. f. O. 1892, pp. 30, 215 [Victoria Nyanza]; id. Vög. Afr. ii. 1903, p. 420.

♂ ♀. Ithanga Hills. 9th October. Wing 123, 126 mm.
♂. Thika. 1st September. ,, 128 mm.

Iris dark brown; bill black; legs dark brown.

Common; not seen on the Tsavo.

Hirundo puella abyssinica.

Hirundo puella abyssinica Oberholser, P. U.S. Nat. Mus. xxviii. 1905, p. 933 [Taveta].

♂ ♀. Ithanga Hills. 4th October. Wing, ♂ 109 mm.
♀ 110 mm.

Iris dark brown ; bill and legs black.

Abundant.

The smaller and more finely-streaked race of this bird, *H. p. puella,* is confined to north-west Africa, specimens from the Congo and northern Angola being apparently of the present race.

Hirundo griseopyga griseopyga.

Hirundo griseopyga Sund. Œfv. Vet.-Ak. Förh. 1850, p. 107 [Port Natal] ; Reichw. Vög. Afr. ii. 1903, p. 403.

♂. Thika. 1st September. Wing 77 mm.
♀ juv. ,, ,, ,, 88 mm.
♀ ad. Ithanga Hills. 2nd October. ,, 93 mm.

Iris dark brown ; bill and legs black.

There are two races of this Swallow, as was pointed out by Heuglin so long ago as 1862, when describing the eastern form under the name of *Atticora cypseloides.*

1. HIRUNDO GRISEOPYGA GRISEOPYGA.

Hirundo griseopyga Sund. Œfv. Vet.-Ak. Förh. 1850, p. 107 [Port Natal].

Atticora cypseloides Heuglin, J. f. O. 1862, p. 297.

Range. South and East Africa.

Rump a pale grey fawn-colour.

2. HIRUNDO GRISEOPYGA MELBINA.

Atticora melbina Verr. Rev. Mag. Zool. 1851, p. 310 [Gaboon].

Hirundo poucheti Petit, Bull. S. Z. Fr. 1883, p. 43.

Range. West Africa, Gaboon and Liberia.

Rump dull brown.

Hirundo smithi.

Hirundo smithi Leach, Tuck. Voy. Congo, App. 1818, p. 407 [Congo River] ; Reichw. Vög. Afr. ii. 1903, p. 410.

♂. Tsavo River. 17th August. Wing 102 mm.
♂. Tsavo. 15th August. ,, 109 mm.

Iris red ; bill and legs black.

The Wire-tailed Swallow was common. I found it breeding in the roofs of huts at Thika.

Hirundo rustica rustica.

Hirundo rustica Linn. Syst. Nat. 1758, p. 191 [Sweden]; Reichw. Vög. Afr. ii. 1903, p. 406.

♀ ad. Ithanga Hills. 4th October. Wing 124 mm.

Iris dark brown; bill black; legs very dark brown.

The Chimney Swallow was very numerous in October, just returning from Europe.

Riparia rufigula.

Cotile rufigula Fischer & Reichw. J. f. O. 1884, p. 53 [Naivasha, B.E.A.].

Riparia rufigula Reichw. Vög. Afr. ii. 1903, p. 400.

o. Tsavo River. 13th August. Wing 108 mm.

Iris dark brown; bill dark; legs light brown.

This was the only specimen seen.

On examining the series in the British Museum, I found that the species was easily divisible into two races: a typical dark coloured race, and a larger and paler northern form.

1. RIPARIA RUFIGULA RUFIGULA.

Cotile rufigula Fischer & Reichw. J. f. O. 1884, p. 53 [Naivasha, B.E.A.].

Range. German and British East Africa to the Congo and Nigeria.

Size smaller. Wing 104–114 mm., average 108. Throat and upper breast distinctly red. Back and underparts darker.

2. RIPARIA RUFIGULA subsp.?

Range. Northern Abyssinia and Eritrea (Bogos Land).

Size larger. Wing 117–120 mm., average 118. Throat and upper breast pale with a very faint tinge of red. Back and underparts lighter.

A bird from Kullo, southern Abyssinia, appears to be intermediate both in size and coloration.

When writing the above I overlooked the fact that a bird which I take to be the same had been described by Zedlitz (Orn. Monatsb. 1908, p. 177) as *R. r. pusilla*, a subspecies not of *R. rufigula*, but of *R. rupestris*. The obvious step after that is the inclusion of *R. rufigula* as a subspecies of

R. rupestris, and this he has proceeded to do (J. f. O. 1910, p. 785). Continuing on the same lines, it might be possible to prove the South African *R. fuligula* a subspecies of *rupestris*. However, for the sake of convenience, if for no other reason, I should certainly be inclined to regard a small red-throated tropical African bird as specifically distinct from the larger light-throated Crag-Martin of southern Europe.

Thripias namaquus namaquus

Picus namaquus Licht Cat. Rer. Nat. Hamb. 1793, p. 17 [S. Africa].

Mesopicus namaquus Reichw. Vög. Afr. ii. 1903, p. 189.

♂ imm. Tsavo River. 15th August Wing 129 mm.

Claude Grant proposes a subspecies, *T. n. intermedius*, for birds from northern German East Africa (Ibis, 1915, p. 465). He distinguishes it from *T. n. namaquus* by the fact that the auricular patch is more or less joined to the throat stripe. Very much the same character, however, can be seen in some examples from South Africa. This particular bird is in almost adult plumage, comes from north of the range of *T. n. intermedius*, and is, as far as I can see, typical *T. n. namaquus*, with very gold-stained wing-quills, light-coloured breast, and auricular patch confined to the ear-coverts.

Dendropicos fuscescens massaicus.

Dendropicos guineensis massaicus Neum. J. f. O. 1900, p. 206 [Lake Nguruman, north of Lake Victoria].

Dendropicos fuscescens massaicus C. Grant, Ibis, 1915, p. 456.

♀. Tsavo River. 28th July. Wing 86 mm.

Iris red; bill dark; legs green.

Campethera nubica nubica.

Picus nubicus Bodd. Tabl. Pl. Enl. 1783, p. 41 [Nubia].

Campethera nubica nubica C. Grant, Ibis, 1915, p. 451.

♀. Tsavo River. 24th July. Wing 108 mm.

♂. Ithanga Hills. 1st October. „ 110 mm.

Trachyphonus darnaudii böhmi.

Trachyphonus böhmi Fischer & Reichw. J. f. O. 1884, p. 179 [Pare Mts., G.E.A.].

Trachyphonus darnaudii böhmi C. Grant, Ibis, 1915, p. 450.

♀. Tsavo River. 26th July. Wing 76 mm.

Iris brown; bill horn-colour; legs slate-colour.

Trachyphonus erythrocephalus erythrocephalus.

Trachyphonus erythrocephalus Cab. J. f. O. 1878, p. 206, pl. ii. figs. 1 & 2 [Zanzibar, Mombasa].

Trachyphonus erythrocephalus erythrocephalus C. Grant, Ibis, 1915, p. 448.

♂ ♀. Tsavo River. 23rd July. Wing, ♂ 102, ♀ 95 mm.

Iris dark brown; bill pinkish brown; legs slate-colour.

Common on the Tsavo.

Pogoniulus pusillus affinis.

Barbatula affinis Reichw. Orn. Centralb. 1879, p. 114 [Kipini, B.E.A.].

Pogoniulus pusillus affinis C. Grant, Ibis, 1915, p. 442.

♂. Tsavo River. 24th July. Wing 56 mm.

Tricholæma lacrymosa.

Tricholæma lacrymosa Cab. J. f. O. 1878, p. 205 [E. Africa]; C. Grant, Ibis, 1915, p. 440.

♂. Tsavo River. 2nd August. Wing 69 mm.

Iris dark brown; bill and legs black.

Tricholæma melanocephala stigmatothorax.

Tricholæma stigmatothorax Cab. J. f. O. 1878, p. 205 [Ndi, Taita].

Tricholæma melanocephala stigmatothorax C. Grant, Ibis, 1915, p. 439.

♂. Tsavo. 19th July. Wing 64 mm.

Iris dark; bill and legs black.

Lybius senex.

Pogonorhynchus senex Reichw. J. f. O. 1887, p. 59 [Ikanga, Ukamba].

? *Lybius leucocephalus* C. Grant, Ibis, 1915, p. 438 [part.].

♂. Thika. 28th August. Wing 98 mm.
♂. Nairobi. 22nd August. „ 96 mm.

Iris dark brown; bill and legs black.

This White-headed Barbet was quite common at Thika. It lived in the larger fig-trees in the open, and I found it a nuisance, as it would sit on a bough over my head and utter a loud note when I was waiting for Green Pigeons. Lönnberg (Vet. Ak. Handl. xlvii. No. 5, 1911, p. 65) considers this a very rare bird. and there are not many specimens in the Museum. I could have shot a dozen any day at Thika, and I shot one from a flock of seven at Nairobi. I saw no sign of any with darker breasts.

Indicator indicator

Cuculus indicator Gmel. Syst. Nat. 1788, i. p. 418 [Interior of Africa].

Indicator indicator C. Grant, Ibis, 1915, p. 430.

♂. Tsavo Swamp. 4th August. Wing 105 mm.

Iris light brown; bill and legs dark.

The Honey-Guide was quite common on the Tsavo. It was unusual not to see one or two during the morning. Their intentions may be excellent, but they are a pest when one is stalking an animal. I only followed one once and it brought me to a bee's hole in a tree in a very short time, though it never settled in the tree but suddenly became silent when I was getting "warm."

This specimen is in the plumage of *I. major* Steph.

Centropus superciliosus superciliosus.

Centropus superciliosus Hempr. & Ehr. Symb. Phys. 1828, fol. *r* [S. Arabia].

Centropus superciliosus superciliosus C. Grant, Ibis, 1915, p. 424.

♂ imm. Tsavo River. 21st July. Wing 161 mm.
♀. „ 25th July. „ 156 mm.

♀ adult. Iris red; bill and feet black.
♂ imm. Iris brown; bill brown; legs dark.

The White-eyebrowed Lark-heeled Cuckoo was seen throughout the country, though I do not know if all were of the same race. On the Tsavo it was common and fond of crawling about in thick grass and under the dead palm-leaves; it rarely flew more than a few yards. It has a weird bubbling note.

The immature specimen has a tail of 9·5 inches against the others' 8, and it is barred for its whole length, the bars becoming wider at the tip.

Chrysococcyx klaasi.

Cuculus klaasi Stephens, in Shaw's Gen. Zool. ix. pt. i. 1815, p. 128 [South Africa].

Chrysococcyx klaasi Reichw. Vög. Afr. ii. 1902, p. 98.

♂. Thika. 27th August. Wing 99 mm.

Iris dark brown; bill and legs green.

Only one example seen.

Cuculus clamosus.

Cuculus clamosus Lath. Gen. Syn. ii. Suppl. 1802, p. xxx [Cape]; Reichw. Vög. Afr. ii. 1902, p. 86.

♂. Ithanga Hills. 6th October. Wing 168 mm.

Iris red; bill black; legs brown.

I saw this bird on one occasion only. It was sitting on a dead bough like a Drongo, and I should have passed it by as such except that a real Drongo came and mobbed it.

Corythaixoides leucogaster.

Chizärhis leucogaster Rüpp. Mus. Senck. iii. 1842, p. 127 [S. Abyssinia].

Corythaixoides leucogaster C. Grant, Ibis, 1915, p. 414.

♂. Tsavo River. 20th July. Wing 213 mm.
♀. ,, 27th July. ,, 217 mm.

Iris dark or brown; bill green; legs black.

Common on the Tsavo River. A very noisy bird with a bleat like a sheep.

Both these birds have green bills.

Gallirex porphyreolophus chlorochlamys.

Gallirex chlorochlamys Shelley, Ibis, 1881, p. 118 [Ugogo]; Reichw. Vög. Afr. ii. 1902, p. 40.

♀. Ithanga Hills. 3rd October. Wing 174 mm.
Iris dark brown; bill black.
Only one seen.

Turacus hartlaubi.

Corythaix hartlaubi Fischer & Reichw. J. f. O. 1884, p. 52 [Meru, nr. Kilimanjaro].

♂. Thika. 27th August. Wing 171 mm.
Iris dark brown; bill reddish brown; legs black.
Fairly common in this district.

Apaloderma narina narina.

Trogon narina Steph. in Shaw's Gen. Zool. ix. pt. i. 1815, p. 14 [Knysna Dist., Cape Colony].

Apaloderma narina narina C. Grant, Ibis, 1915, p. 406.

♂. Ithanga Hills. 4th October. Wing 125 mm.
Iris red; bill greenish yellow; legs dark green.

This Trogon was seen in very thick trees overhanging the Thika River. They do not seem to leave the shade of the trees, and often sit motionless on a bough for some time, consequently they are very easily overlooked.

Colius macrourus pulcher.

Colius macrourus pulcher Neum. J. f. O. 1900, p. 190 [Teita, E. Africa]; C. Grant, Ibis, 1915, p. 404.

♀ imm.	Tsavo River.	23rd July.	Wing	83 mm.
○.	,,	27th July.	,,	93 mm.

The Blue-naped Coly was generally seen in large flocks of thirty or forty in the thick bush along the Tsavo. They were feeding in the tops of the greener flat-topped acacias, hanging on underneath a bough like a Tit. They fly fast and straight, and a flock looks like a flight of arrows going feathers foremost.

Colius striatus affinis.

Colius leucotis affinis Shelley, Ibis, 1885, p. 312 [Dar-es-Salaam].

Colius striatus affinis C. Grant, Ibis, 1915, p. 400.

♂. Nairobi. 22nd August. Wing 95 mm.
Iris dark brown; bill greenish slate; legs dark pink.

Micropus affinis.

Cypselus affinis Gray in Hardwicke's Illust. Ind. Zool. i. 1832, pl. 35. fig. 2 [India].

Apus affinis Reichw. Vög. Afr. ii. 1902, p. 382.

♂. Tsavo. 17th August. Wing 122 mm.

Iris dark brown ; legs black.

Micropus æquatorialis.

Cypselus æquatorialis von Müller, Naumannia, i. pt. 4, 1851, p. 27 [Abyssinia].

Micropus æquatorialis C. Grant, Ibis, 1915, p. 311.

♀. Ithanga Hills. 8th October. Wing 210 mm.
♂. ,, 9th October. ,, 203 mm.

Iris dark brown ; bill black.

This fine Swift was generally seen at a great height. It would come down to a grass-fire, however, and could then be secured.

A grass fire is a very certain draw for many insectivorous birds. At this time of year many are started by natives. In starting one oneself, care should be taken as to where it is going to end up. An isolated patch of high grass about a hundred yards long is best, but see the fire out before you leave, especially if your camp is down wind.

Micropus melba africanus.

Cypselus alpinus africanus Temm. Man. Orn. 1815, p. 270 [S. Africa].

Apus melba africanus Reichw. Vög. Afr. ii. 1902, p. 377.

♀. Ithanga Hills. 3rd October. Wing 210 mm.

Iris dark brown ; bill black.

This Swift has the same habits as the last species.

Tachornis parvus subsp.?

Cypselus parvus Licht. Verz. Doubl. 1823, p. 58 [N.E. Nubia].

Tachornis parvus parvus C. Grant, Ibis, 1915, p. 309.

♀ ad. Tsavo River. July. Wing 120 mm.

This little Swift was common, flying round the tops of the doum-palms.

I am not at all certain which subspecies this Swift belongs to. The wing-measurement is very small for any of the eastern races. I should not be surprised if specimens from this part of the country did not have to be regarded as racially distinct.

Caprimulgus donaldsoni.

Caprimulgus donaldsoni Sharpe, Bull. B. O. C. iv 1895, p. xxix [Hargeisa, Somaliland]; Reichw. Vög. Afr. ii. 1902, p. 354.

♂. Tsavo Swamp. 8th August. Wing 132 mm.

Iris dark brown; legs brown.

This Nightjar was very numerous at one point just short of the swamp, several dozen being seen in the evening. I constantly saw Nightjars everywhere, but could not of course determine the species on the wing.

There are only three examples of this species in the British Museum.

Caprimulgus trimaculatus tristigma.

Caprimulgus tristigma Rüpp. Neue Wirb. 1840, p. 105 [Gondar, Abyssinia].

Caprimulgus trimaculatus tristigma C. Grant, Ibis, 1915, p. 307.

♂. Ithanga Hills. 11th October. Wing 180 mm.

Iris dark brown; bill dark; legs light brown.

Apparently rare.

Caprimulgus fossei.

Caprimulgus fossei Hartlaub, Orn. W.-Afr. 1857, p. 23 [Gaboon]; Reichw. Vög. Afr. ii. 1902, p. 365.

♂. Nairobi. 22nd August. Wing 151 mm.

Iris, bill, and legs dark brown.

Merops apiaster.

Merops apiaster Linn. Syst. Nat. 1758, p. 117 [S. Europe]; C. Grant, Ibis, 1915, p. 299.

♂ ♀. Ithanga Hills. 2nd October. Wing, ♂ 146, ♀ 138 mm.

Iris red ; bill dark ; legs dark grey.

The Common Bee-eater was often seen at Thika and in the Ithanga Hills, usually in small flocks up to a dozen.

Both examples are in very worn plumage.

Melittophagus bullockoides.

Merops bullockoides A. Smith, S. African Quart. Journ. ii. 1834, p. 320 [S. Africa].

Melittophagus bullockoides C. Grant, Ibis, 1915, p. 298.

♂. Tsavo River. 10th August. Wing 114 mm.

Iris red ; bill and legs black.

I saw this Bee-eater on one occasion only, in open park-like country on the Tsavo. They were hawking flies from the tops of some tall acacias.

Melittophagus lafresnayi oreobates.

Melittophagus oreobates Sharpe, Ibis, 1892, p. 320 [Savé, B. E. Africa].

Melittophagus lafresnayi oreobates C. Grant, Ibis, 1915, p. 296.

♂. Thika. 27th August. Wing 103 mm.
♀ juv. ,, 1st September. ,, 100 mm.

Iris red ; bill black ; legs dark flesh-colour.

One or two small flocks of this Bee-eater were seen, probably migrating.

The chest of the immature bird is washed with green.

Melittophagus pusillus cyanostictus.

Melittophagus cyanostictus Cab. in Von der Decken, Reisen in Ost-Afr., Vögel, iii. pt. 1, 1869, p. 34 [Mombasa].

Melittophagus pusillus cyanostictus C. Grant, Ibis, 1915, p. 294.

♀. Tsavo River. 27th July. Wing 74 mm.
♀. ,, 13th August. ,, 78 mm.
♀. ,, 15th August. ,, 73 mm.

Iris red ; bill and legs black.

This little Bee-eater was very common, sitting on low bushes along the more open stretches of the Tsavo; it was also seen at Thika, but was not so numerous.

These specimens, though they have a fairly broad blue line above the throat-patch, have very little blue on the forehead.

Rhinopomastus cabanisi.

Irrisor cabanisi Filippi, Rev. Mag. Zool. 1853, p. 289 [White Nile].

♂ & ♀ ad. Tsavo River. 26th July. Wing, ♂ 100, ♀ 90 mm.

Not common, only one other pair was noticed.

Rhinopomastus cyanomelas schalowi.

Rhinopomastus schalowi Neum. J. f. O. 1900, p. 221 [Usandawe, G. E. Africa].

Rhinopomastus cyanomelas schalowi C. Grant, Ibis, 1915, p. 289.

♂. Tsavo River. 24th July. Wing 112 mm.
♂. Ithanga Hills. 10th October. „ 112 mm.

Iris dark brown; bill and legs black.

This little Wood-Hoopoe was met with in the thorn-bush country, mostly in pairs.

Irrisor damarensis granti.

Irrisor damarensis granti Neum. Orn. Monatsb. 1903, p. 182 [Ukamba]; C. Grant, Ibis, 1915, p. 287.

♂. Tsavo River. 23rd July. Wing 145 mm.
♀. „ 25th July. „ 142 mm.

Iris dark brown; bill and legs red.

This Wood-Hoopoe was found in flocks of from four to twelve on the Tsavo. They would fly along in front with a Magpie-like chattering, and were fond of crawling about under the dead hanging leaves of the doum-palms.

Although the bills of these birds were marked red when the birds were killed, they are at present mainly black with red bases and edges. Otherwise they agree perfectly with the type of this subspecies.

Upupa africana.

Upupa africana Bechst. Kurze Uebers. iv. 1811, p. 172 [Congo & Cape]; C. Grant, Ibis, 1915, p. 279.

♀. Tsavo River. 21st July. Wing 135 mm.
♀. ,, 24th July. „ 130 mm.

Iris dark brown; legs slate-colour.

In open bush country. Not often seen.

Bycanistes bucinator.

Buceros bucinator Temm. Pl. Col. 48 Livr. 1824, pl. 284 [Cape].

Bycanistes bucinator Reichw. Vög. Afr. ii. 1902, p. 243.

I did not secure specimens of the Trumpeter Hornbill, but several were seen on the Thika and on the Tsavo.

Bycanistes cristatus.

Buceros cristatus Rüpp. Neue Wirb. iii. 1835, p. 3, pl. i. [Kordofan].

Bycanistes cristatus Reichw. Vög. Afr. ii. 1902, p. 240.

This large Hornbill was common at Thika and in the Ithanga Hills. It kept to the high trees by the river. I never secured one though I made many attempts.

Lophoceros deckeni.

Buceros deckeni Cab. in Von der Decken, Reisen, Vögel, iii. 1869, pt. 1, p. 37, pl. vi. [German East Africa].

Lophoceros deckeni C. Grant, Ibis, 1915, p. 274, text-fig. 3 *a*.

♂ ♀ ♀. Tsavo River. 22nd July. Wing, ♂ 180, ♀ 163, 175 mm.

♀. Tsavo River. 23rd July. Wing 185 mm.

Iris dark brown; bill (male) black, (female) red on the basal half, white on the terminal half; legs black.

Von der Decken's Hornbill was abundant.

I am afraid I cannot follow Claude Grant's remarks on *Lophoceros deckeni* and *jacksoni*, Ibis, 1915, pp. 275–6. His description of the bill of the female *L. deckeni*, i.e. "obliquely truncated, not curved," seems to be in direct opposition to his own figure, where *L. jacksoni* is shown as the truncated one.

Lophoceros flavirostris flavirostris.

Buceros flavirostris Rüpp. Neue Wirb. 1835, p. 6, pl. ii. [Taranta Mts., Abyssinia].

Lophoceros flavirostris flavirostris C. Grant, Ibis, 1915, p. 273.

♂. Tsavo River. 21st July. Wing 181 mm.
♀♀. ,, 22nd July. ,, 183, 181 mm.

Iris dark brown; bill yellow; legs black.

Common.

Lophoceros erythrorhynchus erythrorhynchus.

Buceros erythrorhynchus Temm. Pl. Col. 36^e Livr. 1823, sp. 19 [Senegal].

Lophoceros erythrorhynchus erythrorhynchus C. Grant, Ibis, 1915, p. 272.

♀ ad. Tsavo River. 22nd July. Wing 187 mm.
♀♀ imm. ,, 24th July. ,, 172, 169 mm.
♀. ,, 25th July. ,, 181 mm.

Iris brown or dark brown; bill red; legs black.

Common in the dry country.

Lophoceros nasutus nasutus.

Buceros nasutus Linn. Syst. Nat. 1766, p. 154 [Senegal].

Lophoceros nasutus nasutus C. Grant, Ibis, 1915, p. 270.

♂ imm. Tsavo. 2nd August. Wing 228 mm.
♂. Ithanga. 4th October. ,, 220 mm.

Male imm. Iris yellow; bill black; legs brown.

Male ad. Iris dark brown; bill white and red; legs black.

The Tsavo specimen is rather interesting. It gives promise of being a much larger bird than the other. The bill is shorter, deeper, black, and not serrated. The basal part of the upper mandible is covered with a sort of scaly white enamel just beginning to form.

Lophoceros melanoleucus suahelicus

Lophoceros melanoleucus suahelicus Neum. J. f. O. 1905, p. 187 [Morogoro, G.E.A.].

♀. Thika. 26th August. Wing 245 mm.

Iris yellow; bill red; legs black.

The Black-and-White Hornbill was common at Thika, but only one was seen on the Tsavo.

Bucorvus cafer.

Buceros caruncolatus cafer Schl. Mus. Pays-Bas, Buceros, 1862, p. 20.

Bucorvus cafer Reichw. Vög. Afr. ii. 1902, p. 236.

♂. Tsavo River. 30th July. Wing 596 mm.

Iris light yellow; bill black; neck wattles red; legs black.

The Ground Hornbill was seen in the low country and the highlands. I have heard them make a noise among rocks which I took to be a lion roaring.

Halcyon chelicuti.

Alaudo chelicuti Stanley, Salt's Abyss. 1814, p. lvi [Chelicut, Abyssinia].

Halcyon chelicuti C. Grant, Ibis, 1915, p. 269.

♀ ad. Tsavo River. 23rd July. Wing 80 mm.
♂ ad. „ 30th July. „ 80 mm.
♂ ad. „ 13th August. „ 86 mm.

The Striped Kingfisher was common and mostly seen in dry country, feeding on insects.

Halcyon albiventris orientalis.

Halcyon orientalis Peters, J. f. O. 1868, p. 134 [Inhambane].

Halcyon albiventris orientalis Reichw. Vög. Afr. ii. 1902, p. 275.

♂. Thika. 1st September. Wing 103 mm.
♂ imm. Tsavo River. 11th August. „ 101 mm.

Iris dark brown; bill and legs red.

Halcyon leucocephala leucocephala.

Alcedo leucocephala P. L. S. Müller, Linn. Syst. Nat. Suppl. 1776, p. 94 [Senegal].

Halcyon leucocephala leucocephala C. Grant, Ibis, 1915, p. 265.

♀. Thika River. 2nd September. Wing 105 mm.

Common.

Eurystomus afer suahelicus.

Eurystomus afer suahelicus Neumann, J. f. O. 1905, p. 186 [Tschara, Kilimanjaro].

♀. Ithanga Hills. 1st October.
♀. „ 9th October.

Iris dark brown; bill yellow; legs yellowish green.

Occasionally seen in flocks, perching on the high trees by the river. Locally known as Butcher Roller.

Coracias nævia nævia.

Coracias nævia Daud. Traité, ii. 1800, p. 258 [Senegal].

Coracias nævia nævia C. Grant, Ibis, 1915, p. 262.

♂. Ithanga Hills. 28th September. Wing 182 mm.

Iris dark brown; bill dark; legs dark brown.

This Roller was met with in the Thika district and Ithanga Hills only.

Coracias caudatus caudatus.

Coracias caudata Linn. Syst. Nat. 1766, p. 160 [Angola].

Coracias caudatus caudatus C. Grant, Ibis, 1915, p. 261.

♀.	Thika.	28th August.	Wing 167 mm.
♀.	Tsavo Swamp.	4th August.	„ 159 mm.
♀.	„	7th August.	„ 163 mm.

Iris light brown; bill dark; legs light brown.

The plumage of the Thika bird is worn and much duller than the others.

The Long-tailed Roller was common in the low country and in the highlands. A grass-fire would draw numbers in the latter country.

Poicephalus rufiventris simplex.

Poicephalus simplex Reichw. J. f. O. 1887, p. 55 [Near Serian, German East Africa].

Poicephalus rufiventris simplex Madarasz, Orn. Monatsb. 1912, p. 80.

♂.	Tsavo River.	20th July.	Wing 152 mm.
2 ♀.	„	26th July.	„ 150, 151 mm.

The Red-bellied Parrot was common on the Tsavo. It had a loud shriek and a very fast flight. I saw it generally near baobab trees. This was the only Parrot seen.

The bill is very much larger, sex for sex, than in the northern race.

Glaucidium perlatum.

Strix perlata Vieill. N. Dict. d'Hist. Nat. vii. 1817, p. 26 [Senegal].

Glaucidium perlatum C. Grant, Ibis, 1915, p. 256.

♂. Tsavo River. 24th July. Wing 105 mm.
♂. „ 25th July. „ 105 mm.

I saw this little Owl on several occasions. In each case it was sitting on the bare bough of a tree without any pretence of concealment.

Falco cuvieri.

Falco cuvieri A. Smith, S. African Quart. Journ. i. 1830, p. 392 [Kei R., E. Cape Colony]; C. Grant, Ibis, 1915, p. 249.

♂ ad. Thika. 5th September. Wing 236 mm.

Iris dark brown; bill blue, cere yellow; legs yellow.

This was the only example of Cuvier's Falcon observed. It is in full adult freshly-moulted plumage.

Falco peregrinus minor.

Falco minor Schleg. Abh. Geb. Zool. & Vergl. Anat. iii. 2. Heft, 1844, p. 20 [Cape].

Falco minor Reichw. Vög. Afr. i. 1901, p. 622.

♀. Tsavo Swamp. 6th August. Wing 315 mm.

Iris dark brown; bill black, cere yellow; legs lemon-yellow.

This particular bird was exceedingly tame. I saw only one other Falcon of the same size, also in this district.

Poliohierax semitorquatus.

Falco semitorquata A. Smith, Rep. Exp. C. Afr. 1836, p. 44 [Bechuanaland].

Poliohierax semitorquatus C. Grant, Ibis, 1915, p. 249.

♂. Tsavo River. 10th August. Wing 127 mm.

Iris dark ; bill black, cere orange ; legs orange.

I also saw the African Falconet at Koru Halt near Muhoroni. Their habits, from the little I saw of them, were more those of a Shrike than of a Hawk.

Aviceda cuculoides verreauxi.

Aviceda verreauxi Lafr. Rev. Zool. 1846, p. 130 [Port Natal].

Baza verreauxi Reichw. Vög. Afr. i. 1901, p. 619.

Imm. Thika. September. Wing 295 mm.

This was the only example of the Cuckoo-Falcon secured or noticed. It is in immature plumage, with the back and head brown interspersed with dark blue feathers. This specimen is named on locality only.

Though the adults of *A. c. cuculoides* from West Africa are easily distinguishable from *A. c. verreauxi* of South and East Africa, I can see no difference between the immature birds except that *A. c. cuculoides* has a tendency to darker coloration earlier. I certainly think *A. c. verreauxi* is merely a form of the other, and not a separate species.

Machærhamphus anderssoni.

Stringonyx anderssoni Gurney, P. Z. S. 1865, p. 618 [Damaraland].

Machærhamphus anderssoni Reichw. Vög. Afr. i. 1900, p. 596.

♀. Tsavo River. 12th August. Wing 364 mm.

Iris yellow ; bill black ; legs slate.

I saw only one example of this bird. I was standing outside my tent after dinner, watching some large bats. I determined to shoot one, and picked up a collector's gun ; as I did so, a large Hawk came past me going very fast, and I was lucky enough to kill it with a snap-shot. It was also undoubtedly after the bats.

The whole plumage is sooty-black, all the feathers having white bases, which show through in places, especially on the throat, down which, however, there is a central line of blacker feathers. There are four specimens in the British Museum, and one from Kampala in Uganda matches my bird well.

Milvus ægyptius

Falco ægyptius Gmel. Syst. Nat. i. 1788, p. 261 [Egypt].

♀. Ithanga Hills. 1st October. Wing 450 mm.

Iris dark brown; bill, cere, and legs yellow.

No Kites were seen in the Serengeti or on the Tsavo; elsewhere they were common. The Egyptian Kite frequented my camp on the Thika River.

This bird appears to be intermediate between *M. æ. ægyptius* and *M. æ. parasitus*, but nearer the former.

Terathopius ecaudatus.

Falco ecaudatus Daud. Traité, ii. 1800, p. 54 [Knysna].

Terathopius ecaudatus C. Grant, Ibis, 1915, p. 247.

♂. Tsavo River. 26th July. Wing 505 mm.
♂ juv. Ithanga Hills. 3rd October. ,, 490 mm.

Male adult. Iris dark brown; bill yellow, black at the tip; cere red; feet orange.

Male juv. Iris brown; bill yellowish green; legs whitish; cere yellow-green.

The Bataleur Eagle was commonly seen on the wing all through the country. Its shape is unmistakable and peculiar. I never happened to see it stoop at birds or come to dead animals, as I believe it will on occasions.

Asturinula monogrammica.

Falco monogrammicus Temm. Pl. Col. i. 1824, pl. 314 [Senegal].

Kaupifalco monogrammicus Reichw. Vög. Afr. i. 1901, p. 547.

♀. Tsavo River. 2nd August. Wing 239 mm.

Iris orange; bill yellow, dark at the tip; legs orange-red.

This bird was met with in the dense bush along the Tsavo River. I did not see it elsewhere.

Lophoaëtus occipitalis.

Falco occipitalis Daud. Traité, ii. 1800, p. 40 [Knysna].

Lophoaëtus occipitalis C. Grant, Ibis, 1915, p. 246.

I did not secure a specimen of this Eagle, though I saw many in the Thika district. The long crest and white patches on the wings are very noticeable. I did not see it in the low country.

Spizaëtus bellicosus.

Falco bellicosus Daud. Traité, ii. 1800, p. 38 [Gt. Namaqualand].

Spizaëtus bellicosus C. Grant, Ibis, 1915, p. 245.

♂. Tsavo River. 10th August. Wing 575 mm.

Iris yellow; bill black, cere blue; feet greyish white.

I saw a pair of Martial Hawk-Eagles on the Tsavo, and was lucky enough to kill one at long range. I never met with it again.

Hieraaëtus fasciatus spilogaster.

Spizaëtus spilogaster Bonap. Rev. et Mag. Zool. 1850, p. 487 [Abyssinia].

Hieraaëtus fasciatus Zedlitz, J. f. O. 1910, pp. 374–376.

♀. Tsavo River. 27th July. Wing 435 mm.

Iris yellow; bill blackish-horn; legs whitish green.

I found this Hawk-Eagle breeding in trees up the Tsavo River. They make a large and conspicuous nest of sticks on the top-fork of a tall tree. I saw three nests occupied and many others empty. This was in late July and early August. I believe the Spanish form, *H. f. fasciatus*, only breeds in rocks. The one I shot was sitting on a single, very much addled egg. The bird was in clean adult dress.

Hieraaëtus wahlbergi.

Aquila wahlbergi Sundev. Œfv. Vet.-Ak. Förh. 1850, p. 109 [Upper Kaffraria].

Hieraaëtus wahlbergi Reichw. Vög. Afr. i. 1901, p. 581.

♂. Ithanga Hills. 9th October. Wing 418 mm.

2 ♀ ad. & imm. Ithanga Hills. 11th October. Wing: ad., 422 mm.; imm., 410 mm.

The immature bird is much lighter in colour than the other.

Iris dark brown; bill dark, cere yellowish; feet yellowish.

Wahlberg's Eagle was not much in evidence until a grass-fire occurred. Then I have seen as many as twenty or thirty at once, very busy with the disturbed insects. I did not meet with it in the low country.

Aquila pomarina pomarina.

Aquila pomarina Brehm, Handb. Naturg. Vög. Deutschl. 1831, p. 27.

Aquila pomarina pomarina Hartert, Vög. pal. Faun. ii. 1914, p. 1104.

♀ ad. Ithanga Hills. 12th October. Wing 483 mm.

Iris dark brown ; cere and feet orange ; bill dark.

I only saw one Spotted Eagle, which I secured. It came to a grass-fire and perched on a tree just in front of the flames. I recognised it as something fresh, and promptly shot it, though I had no little difficulty in retrieving it.

This is the first recorded instance of the occurrence of the Spotted Eagle in tropical Africa. The most southern occurrence I can find previous to this is that of one of the large race in Bogosland in Italian Eritrea.

Aquila rapax.

Falco rapax Temm. Pl. Col. i. 1828, pl. 455 [S. Africa].

Aquila rapax C. Grant, Ibis, 1915, p. 244.

♂ imm. Ithanga Hills. 29th September. Wing 492 mm.

Iris dark brown ; bill dark, cere yellow ; legs yellow.

I did not positively identify the Tawny Eagle on the Tsavo, though I saw several brown Eagles at a distance which were quite likely of this species. On the Thika, however, it was not uncommon. It is the only Eagle I ever saw come to carrion.

Buteo anceps.

Falco desertorum Daud. Traité, ii. 1800, p. 162 [Cape of Good Hope].

Buteo desertorum C. Grant, Ibis, 1915, p. 244.

Buteo buteo anceps Brehm : Hartert, Vög. pal. Faun. ii. p. 1125.

♀. Ithanga Hills. 10th October. Wing 370 mm.

Iris dark brown ; bill dark ; legs yellow.

This specimen agrees well with Reichenow's description of the red form of the adult, but from its behaviour I should have taken it to be a young bird. It was very tame and only flew from tree to tree, whereas all the other Buzzards and Kites—they were round a grass-fire—were distinctly shy.

The bird is brick-red beneath, the thighs being very little darker than the rest of the under surface; feathers of the back dark brown with red edges; tail brick-red. There are no specimens in the British Museum Collection of so red a colour.

Buteo augur.

Buteo augur Rüpp. Neue Wirb., Vög. 1835, p. 38, pl. xvi. [Abyssinia]; C. Grant, Ibis, 1915, p. 243.

♀. Thika. 1st September. Wing 435 mm.

Though the Augur Buzzard was common in the Ithanga Hills, I secured one only. The odd shape and breadth of its wings make it unmistakable when flying. I did not meet with it on the Tsavo. I had considerable difficulty in naming both these Buzzards: the variation in the plumage of *B. augur* is amazing. As I shot this specimen sitting, I did not recognise it as *B. augur*, which I should have done had I seen it flying.

General colour above brown with several darker feathers; below white with a tinge of chestnut in places and with large blackish-brown tips to the chest-feathers. Tail dirty chestnut with thin brown bars. The plumage was much worn.

Accipiter minullus.

Falco minullus Daud. Traité, ii. 1800, p. 88 [Gamtoos R., Cape Colony].

Accipiter minullus tropicalis Reichw. J. f. O. 1898, p. 139.

Accipiter minullus C. Grant, Ibis, 1915, p. 242.

♂ imm.	Thika.	October.	Wing 150 mm.
♀.	Tsavo River.	27th July.	„ 155 mm.

Iris yellow; bill black; feet yellow.

The Least Sparrow-Hawk is not common in either locality.

Melierax gabar.

Falco gabar Daud. Traité, ii. 1800, p. 87 [Swartkop River, Cape Colony].

Melierax gabar C. Grant, Ibis, 1915, p. 240.

♀. Tsavo Swamp. 6th August. Wing 175 mm.
♀. Tsavo River. 11th August. ,, 217 mm.
♀. Tsavo. 17th August. ,, 194 mm.

Iris and cere yellow; bill black; legs orange.

This Hawk was very common on the Tsavo, and nearly always met with in pairs.

I saw a black-looking Hawk on August 11 passing through the tops of the trees along the Tsavo, and was fortunate in securing it by a long shot; it proved to be the black form of this species. I saw no others.

Melierax canorus poliopterus.

Melierax poliopterus Cabanis, J. f. O. 1868, p. 413 [Umba River, G. E. Afr.].

Melierax canorus poliopterus Erlanger, J. f. O. 1904, p. 163.

♂ ♀. Tsavo River. 24th July. Wing, ♂ 310, ♀ 340 mm.
♂. ,, 15th August. ,, 320 mm.

Iris hazel or dark brown; bill black, cere red or yellow; legs red or orange-colour.

Not uncommon on the Tsavo, both in the thick bush and on the Serengeti Plains. It was usually shy.

Serpentarius serpentarius.

Falco serpentarius Miller, Var. subjects Nat. Hist. 1779, pl. xxviii. [Cape of Good Hope].

Serpentarius serpentarius Reichw. Vög. Afr. i. 1900, p. 528.

♂. Ithanga Hills. 8th September.

I noticed a good number of Secretary Birds, both on the Serengeti and along the Thika. Some of them I saw constantly picking up something off the ground, and I believe they feed to a large extent on insects. I have also seen them walk behind a grass-fire looking for half-charred locusts and grasshoppers.

Pelecanus roseus.

Pelecanus roseus Gmel. Syst. Nat. i. pt. 2, 1789, p. 570 [Manila, Philippines]; Reichw. Vög. Afr. i. 1900, p. 101.

2 ♀. Tsavo River. 11th August. Wing 618 mm.

Iris cream-colour; bill blue, red, and yellow; legs red.

A large flock of Pelicans were seen in the early morning on the tops of some high trees by the Tsavo. The river was enclosed by bush at this point, and they could not have been feeding anywhere near. I presume they were on migration and had rested there for the night.

Plotus rufus.

Plotus rufus Lacep. et Daud. in Buffon Hist. Nat. (18mo ed. Didot), Quad. xiv. p. 319; Ois. xvii. 1799, p. 81 [Senegal].

Anhinga rufa Reichw. Vög. Afr. i. 1900, p. 95.

♂. Tsavo River. August. Wing 355 mm.

Several Darters were seen on the Tsavo at different times. They were shy and not common.

Anas undulata.

Anas undulata Dubois, Orn. Gal. 1839, p. 119, pl. 77 [Cape]; Reichw. Vög. Afr. i. 1900, p. 113.

○. Thika District. 30th August.

I shot several Yellow-billed Ducks, but did not keep any skins. They were all young and in bad plumage.

Dendrocygna viduata.

Anas viduata Linn. Syst. Nat. i. 1766, p. 205 [Cartagena, Spain].

Dendrocygna viduata Reichw. Vög. Afr. i. 1900, p. 124.

♂ ad. Thika. 30th August. Wing 214 mm.

Iris dark; bill black, tipped with blue; feet blue-grey.

I noticed several White-faced Tree-Ducks among a large number of the Yellow-billed Ducks, on a small pool near Thika.

This specimen was shot by the late R. B. Woosnam, who was with me at the time.

Alopochen ægyptiacus.

Anas ægyptiaca Linn. Syst. Nat. i. 1766, p. 197 [Egypt].

Alopochen ægyptiacus C. Grant, Ibis, 1915, p. 73.

♂ & ♀ ad. Tsavo. 21st August.

I saw the Egyptian Goose on this occasion only, and secured a right and left with a ·410 collector's gun.

Ardeola ralloides.

Ardea ralloides Scopoli, Ann. i. 1769, p. 88.

Ardeola ralloides Reichw. Vög. Afr. i. 1901, p. 374.

♀. Tsavo Swamp. 6th August. Wing 215 mm.

Iris yellow; bill green; legs green.

The Squacco Heron was seen in most places where there was water.

Ardea goliath.

Ardea goliath Cretzschmar in Rüpp. Atlas, 1826, p. 39, pl. 36 [White Nile]; Reichw. Vög. Afr. i. 1901, p. 376.

♀ imm. Thika River. 3rd October.

Rarely seen on the Tsavo and Thika rivers.

Ephippiorhynchus senegalensis.

Micteria senegalensis Shaw, Trans. Linn. Soc. v. 1798, p. 35, pl. 3 [Senegal].

Ephippiorhynchus senegalensis C. Grant, Ibis, 1915, p. 67.

♀. Tsavo Swamp. 3rd August.

Bill red, black band, yellow saddle; iris yellow; legs black, joints pink.

Only seen on this one occasion, and secured by a lucky flying shot with a ·22 rifle.

Hagedashia hagedash erlangeri.

Hagedashia hagedash erlangeri Neumann, Ornis, xiii. 1909, pp. 193, 195 [Dogge, S. Somaliland].

♂. Ithanga Hills. 4th October. Wing 368 mm.

Iris white; bill purple and black; legs dark red and black.

This Ibis was not uncommon on the Tsavo and Thika rivers.

Balearica regulorum gibbericeps.

Balearica gibbericeps Reichw. J. f. O. 1892, p. 126 [E. Africa].

Balearica regulorum gibbericeps Reichw. Vög. Afr. i. 1900, p. 266.

♂. Thika. 25th August.

Iris dark; bill and legs black; cheek and throat red.

The Crowned Crane was seen on the swamps of the Tsavo, and on the open plains at Thika a long way from water.

Otis kori struthiunculus.

Otis kori struthiunculus Neum. J. f. O. 1907, p. 306 [Lake Zwai]; C. Grant, Ibis, 1915, p. 65.

♂ ♀ ad. Tsavo River. 6th August. Wing, ♂ 641, ♀ 573 mm.

This Bustard was not uncommon on open ground, both in the Serengeti and the highlands. Sometimes they were quite tame. I took four shots to kill the male of these two at about 200 yards, and he did not seem in the least alarmed.

Otis senegalensis canicollis.

Otis canicollis Reichw. Orn. Centralb. 1881, p. 79 [R. Juba].

Otis senegalensis canicollis C. Grant, Ibis, 1915, p. 65.

♂. Tsavo River. 1st August. Wing 313 mm.

Iris cream-colour; bill cream-colour, tipped with dusky; legs cream-colour.

The Grey-necked Bustard was not uncommon on the Serengeti Plains.

This bird is certainly more sandy on the back than any of Claude Grant's specimens or than any in the collection from British or German East Africa. It is probably the *Otis canicollis erlangeri* of Reichenow, and is a variation of *O. s. canicollis*, other specimens from near localities being dark.

Otis ruficrista gindiana.

Eupodotis gindiana Oustalet, Bull. Soc. Philom. 1881, p. 163 [Somaliland].

Lophotis gindiana Sharpe, Cat. Birds Brit. Mus. xxiii. 1894, p. 292.

Otis ruficrista gindiana Zedlitz, J. f. O. 1914, p. 635.

♂ ♀ ad. Tsavo Swamp. 7th August. Wing, ♂ 272, ♀ 265 mm.

Iris cream-colour; bill dark; legs brownish grey.

Quite common in thin bush at this point. Not seen elsewhere.

Cursorius temminckii.

Cursorius temminckii Swainson, Zool. Illustr. ii. 1822, p. 106.

Cursorius temminckii C. Grant, Ibis, 1915, p. 60.

2 ♀. Ithanga Hills. 27th September. Wing 116 & 121 mm.

Iris dark brown; bill dark; legs white.

Common on the bare patches of ground surrounded by bush in the Ithanga Hills and Thika district.

Tringoides hypoleucus.

Tringa hypoleucos Linn. Syst. Nat. 1758, p. 149 [Sweden]; C. Grant, Ibis, 1915, p. 58.

♀. Tsavo Swamp. 6th August. Wing 109 mm.
♀. Thika. 3rd September. ,, 110 mm.

Iris dark brown; bill dark; legs greenish slate.

The Common Sandpiper was seen on the Tsavo River in several places, and also on the high ground near Thika. It was one of the very few European birds I saw at this time of year.

Stephanibyx coronatus.

Charadrius coronatus Boddaert, Tab. Pl. Enl. 1783, p. 49 [Cape].

Stephanibyx coronatus C. Grant, Ibis, 1915, p. 56.

♂ ♀. Tsavo Swamp. 6th August. Wing 195 & 188 mm.
♀. Ithanga Hills. 2nd October. ,, 192 mm.

Iris yellow; bill black, red at the base; legs red.

The Crowned Lapwing was common in both localities. It flies round shrieking when disturbed, and is a great nuisance when one is after large game. I saw a young one in down at Thika in late August.

Hoplopterus armatus.

Charadrius armatus Burchell, Travels, i. 1822, p, 501 [Klaarwater, or Griquatown, Cape Colony].

Hoplopterus armatus C. Grant, Ibis, 1915, p. 55.

♂. Tsavo Swamp. 6th August. Wing 190 mm.

Iris deep crimson; bill and legs black.

A pair of Spur-winged Plovers were seen by a swamp in the top reaches of the Tsavo. They were not met with elsewhere.

Podica sp.

♀. Thika River, Ithanga Hills. 3rd October. Wing 190 mm.

This Finfoot was not uncommon on the Thika River near the Ithanga Hills. I saw it usually in pairs and often in swift running water. It was shy, and went straight to cover under the opposite bank.

In attempting to name this bird I went carefully over all the specimens in the Natural History Museum, and though the material is very incomplete, certain points of interest became evident. The first is that there are two distinct species in South and East Africa, not one as is usually supposed. The one is *Podica petersi* Hartl., a very large bird, apparently rare, and confined to the east coast, from the mouth of the Tana River in British East Africa to Bathurst in eastern Cape Colony. The other is a much smaller bird, ranging from Cape Colony through the Transvaal, Zululand, and Nyasaland to the highlands of British East Africa. This smaller bird may or may not be distinct from *Podica senegalensis* of north-western Africa.

The difference is mainly in size. *Podica petersi* has a wing of from 230–252 mm., the other bird 183–211 mm. At any rate in breeding-plumage, and possibly at other times as well, the adult male of *P. petersi* has a black foreneck;

so has the adult male of *P. senegalensis.* I cannot find any evidence that the smaller and commoner bird ever assumes a black foreneck. If it does, it is probably indistinguishable from *P. senegalensis*; but it is at least noteworthy that out of seven *P. senegalensis* from West Africa, two have a black neck, out of four *P. petersi* from the east coast, two have a black neck, and out of fourteen of this bird, none has a black neck. Further, I must have seen a dozen pairs or more on the Thika River, and though I was not paying any great attention to them, I am pretty sure I should have noticed a black-necked one. However, whether distinct from *P. senegalensis* or not, it is certainly distinct from *P. petersi.*

The male described in Stark and Sclater's 'Fauna of South Africa' is true *P. petersi,* the female probably the other bird. The male figured in Sharpe and Layard's 'Birds of South Africa' is also *P. petersi,* being probably specimen No. 2 in the appended list. Reichenow, who unites *P. petersi* with *P. senegalensis*, is probably only thinking of the smaller bird.

The next point is that *Podica jacobi* Reichw. is the female and non-breeding male of *P. camerunensis* Sjöst., as the series of birds collected by Mr. G. L. Bates in the Cameroons shows clearly. I append a list of the birds at present in the Natural History Museum.

1. Podica senegalensis.

Heliornis senegalensis Vieill. N. Dict. H. N. xiv. 1817, p. 279.

Hab. Senegal, Gambia, Sierra Leone, Gold Coast, South Nigeria.

	mm.			
1. Ad.? ♂.	Wing 205.	Sierra Leone.	25. 12. 04.	Black foreneck.
2. Ad.? ♂.	,, 203.	Gambia.	?	,,
3. Ad.?	,, 205.	,,	?	White foreneck.
4. Ad.?	,, 203.	Gold Coast.	?	,,
5. Ad.?	,, 182.	Senegal.	?	,,
6. Juv.	,, 174.	,,	?	,,
7. Juv.	,, 160.	S. Nigeria.	12. 1. 12.	,,

2. PODICA PETERSI.

Podica petersi Hartl. Abhandl. nat. Ver. Hamburg, ii. 1852, p. 62.

Podica mossambicana Peters, Ber. Verh. k. Preuss. Akad. Berlin, 1853, p. 783 [Mosambique].

Heliornis impipi Licht. Nomencl. Av. 1854, p. 104.

Hab. East Coast of Africa, from British East Africa to East Cape Colony.

	mm.			
1. Ad.? ♂.	Wing 252 (worn).	S.E. Africa.	?	Black foreneck.
2. Ad. ♂.	,, 252.	Natal.	?	,,
3. Ad. ♀.	,, 240.	Mozambique.	?	White foreneck.
4. Ad. ♀.	,, 230 (much worn).	Tana River (mouth).	May.	,,

3. PODICA sp.?

Hab. South Africa: Transvaal, Zululand, Nyasaland, British East Africa (highlands).

	mm.			
1. Ad. ♀.	Wing 198.	South Africa.	26 March.	White throat.
2. Ad.?	,, 200.	,,	?	,,
3. Ad.?	,, 196.	,,	?	,,
4. Ad.?	,, 210.	,,	?	,,
5. Ad.?	,, 206.	,,	?	,,
6. Ad.?	,, 211.	,,	?	,,
7. Ad.?	,, 205.	Transvaal.	26 May.	,,
8. Ad. ♀.	,, 210.	Zululand.	15 Aug.	,,
9. Ad. ♀.	,, 199.	,,	24 Sept.	,,
10. ? Ad. ♂.	,, 195.	Nyasaland.	June.	,,
11. Ad. ♀.	,, clipped.	,,	1 Oct.	,,
12. Ad. ♀.	,, clipped.	,,	November.	,,
13. ? Ad. ♀.	,, 183.	,,	June.	,,
14. Ad. ♀.	,, 191(worn).	B. E. Africa.	3 Oct.	,,

4. PODICA CAMERUNENSIS.

Podica camerunensis Sjöst. Orn. Monatsb. i. 1893, p. 42; Reichw. Vög. Afr. i. 1900, p. 300.

Podica jacobi Reichw. J. f. O. liv. 1906, p. 325.

Hab. Cameroons.

	mm.			
1. Ad. ♂.	Wing 187.	R. Ja.	26 Aug.	Very black breast and foreneck.
2. Ad. ♂ (testes large) G. L. B.	,, 188.	,,	24 Apr.	Less black breast, black foreneck.
3. Ad. ♂.	,, 191.	,,	10 Mar.	,, ,,

	mm.			
4. Ad. ♂ (testes medium) G. L. B.	Wing 193.	R. Ja.	27 Feb.	White breast and foreneck.
5. Ad. ♂.	,, 189.	,,	26 Jan.	,, ,,
6. Ad. ♀.	,, 152.	,,	30 Apr.	,, ,,
7. Ad. ♀ (ova in ovary) G. L. B.	,, 160.	,,	27 Mar.	,, ,,
8. Ad. ♀ (ova in ovary) G. L. B.	,, 170.	,,	23 Mar.	,, ,,
9. Ad. ♀.	,, 171.	Efulen.	1 Feb.	,, ,,
10. Ad. ♀.	,, 160.	R. Ja.	10 Feb.	,, ,,
11. Ad. ♀.	,, 162.	,,	27 Dec.	,, ,,

Specimens 4–11 agree exactly with Reichenow's description of *P. jacobi,* and this therefore becomes a synonym.

Since the above was written, Dr. Hartert has very kindly sent me information about the specimens from South and East Africa in Tring Museum. Two males—one from Natal, the other from East London—are large, having wing-measurements of 235 and 243 mm. respectively; the others average just over 200 mm. None have black necks, but all are from Natal or East Cape Colony. I am still inclined to believe in the presence of two separate species in this district. For, even allowing that there may be disparity of size in the sexes (there is such in *P. camerunensis*, but not apparently in *P. senegalensis* proper), there is still the fact that the large eastern and small Senegal birds assume a black neck, and the intervening central and southern form does not. I should not, however, feel justified in giving this third form a name on the very incomplete material available.

Limnocorax niger.

Rallus niger Gmel. Syst. Nat. i. pt. 2, 1789, p. 717 [Cape].

Limnocorax niger C. Grant, Ibis, 1915, p. 46.

♂ ad. Thika. 5th September. Wing 106 mm.

Iris red; bill light green; legs red.

I met with the Black Rail on one occasion only, several being seen on the road beyond Chania Bridge where it passes through a small papyrus swamp.

Turtur chalcospilos.

Columba chalcospilos Wagler, Syst. Av., Col. 1827, sp. 83 [Senegal].

Turtur chalcospilos C. Grant, Ibis, 1915, p. 39.

♂ ♀. Tsavo. 19th July. Wing, ♂ 105, ♀ 105 mm.

Iris black ; bill purplish lead ; feet purple.

This Dove was numerous on the Tsavo, and generally seen feeding on the ground under the bushes ; it was not noticed elsewhere.

This would be *T. c. acanthina* of Oberholser, P. U.S. N. M. 1905, p. 845, if that subspecies is found to be valid.

Œna capensis.

Columba capensis Linn. Syst. Nat. i. 1766, p. 286 [Cape].

Œna capensis C. Grant, Ibis, 1915, p. 45.

♀. Tsavo River. 29th July. Wing 102 mm.

♀. Tsavo Swamp. 3rd August. „ 103 mm.

Iris dark brown; bill dark; feet purple.

These birds are from the type-locality of *Œ. c. anonyma* Oberholser, P. U.S. N. M. 1905, p. 843.

The Long-tailed Dove was seen only at two points on the Tsavo River, both fairly far up; like the last species, it was also fond of feeding on the ground.

Streptopelia capicola damarensis.

Turtur damarensis Finsch & Hartl. Vög. Ost-Afr. 1870, p. 550 [Damaraland].

Turtur capicola tropicus Reichw. Orn. Monatsb. 1902, p. 139.

Streptopelia capicola damarensis C. Grant, Ibis, 1915, p. 42.

♀. Thika. September. Wing 146 mm.

This Dove was very common everywhere. The bushes along the Tsavo were sometimes covered with them, though I cannot say whether it was the same subspecies which occurred in both places.

Streptopelia semitorquata semitorquata.

Columba semitorquata Rüppell, Neue Wirb. 1835, p. 66, pl. 23 [Taranta Mt., N. Abyssinia].

Streptopelia semitorquata semitorquata C. Grant, Ibis, 1915, p. 41.

♀. Thika. 28th March. Wing 173 mm.
♂. ,, 29th March. ,, 180 mm.

Iris dark, surrounded by red; bill dark; legs purple.

This Turtle-Dove was common at Thika, and generally quite tame. I did not meet with it in the Ithanga Hills or in the low country.

Vinago calva salvadorii.

Vinago calva salvadorii Dubois, P. Z. S. 1897, p. 784 [East and Central Africa]; C. Grant, Ibis, 1915, p. 36.

2 ♂. Thika. 31st August. Wing 169 & 175 mm.

Iris light blue, with light pink ring; bill red, tip white; legs red.

Very common at Chania Bridge and along the Thika; they came to feed on the wild figs. I found them almost impossible to see among the leaves, as they sit very still. I saw no Green Pigeons in the low country.

Pterocles gutturalis saturatior.

Pterocles gutturalis saturatior Hartert, Nov. Zool. vii. 1900, p. 29 [British East Africa].

♀. Thika. 28th August. Wing 206 mm.

Iris dark brown; legs grey-brown.

This Sand-Grouse was met with on the edge of the Athi Plains near Thika. It was common, but wild.

Pterocles decoratus decoratus.

Pterocles decoratus Cabanis, J. f. O. 1868, p. 413 [Lake Jipe].

Pterocles decoratus decoratus C. Grant, Ibis, 1915, p. 32.

♀. Tsavo River. 26th July. Wing 160 mm.
♂. ,, 7th August. ,, 165 mm.

Iris dark brown; bill dark; feet greenish yellow.

This Sand-Grouse was found on the Serengeti Plains and in quite thick bush by the river. I came across three nests in early August, each with two eggs.

Acryllium vulturinum.

Numida vulturina Hardw. P. Z. S. 1834, p. 52 [West coast of Africa !].

Acryllium vulturinum Reichw. Vög. Afr. i. 1901, p. 418.

♂. Tsavo River. 27th July. Wing 326 mm.

Iris vermilion; bill greenish; legs black.

The Vulturine Guinea-Fowl was met with only in thick bush in the low country. They were generally shy and in large flocks. They roosted at night in the thorn-trees well back from the river. Their range ceases as the bush gets more open, and shortly afterwards Reichenow's Helmeted Guinea-Fowl appears.

Numida reichenowi.

Numida reichenowi Ogilvie-Grant, Ibis, 1894, p. 535 [Ukambani]; C. Grant, Ibis, 1915, p. 23.

♂. Tsavo River. 29th July. Wing 286 mm.

Iris dark brown; helmet brown; neck blue, wattles red; bill greenish; legs black.

Reichenow's Helmeted Guinea-Fowl was met with in the more open country towards the head-waters of the Tsavo. I must have seen several thousand come down to drink at one swamp. They walked out of the bush in flocks of twenty or thirty and congregated on the shore. They were very tame.

Pternistes leucoscepus infuscatus.

Pternistes infuscatus Cabanis, J. f. O. 1868, p. 413 [Lake Jipe].

Pternistes leucoscepus infuscatus C. Grant, Ibis, 1915, p. 20.

♂ ad. Tsavo River. 28th July. Wing 206 mm.

Iris dark brown; bill dark; throat and naked skin round eye red; neck yellow; legs black.

This Spur-Fowl was seen in very large numbers on the edge of the Serengeti Plains. It did not occur in the thick bush. It was also fairly numerous in the Kikuyu shambas on the Fort Hall road.

Francolinus uluensis.

Francolinus uluensis Ogilvie-Grant, Ibis, 1892, p. 44 [Machakos]; C. Grant, Ibis, 1915, p. 13.

♀ ad. Ithanga Hills. 27th September. Wing 165 mm.
♀ ad. ,, 28th September. ,, 160 mm.

The Machakos Francolin was met with only in the Thika district, where it was the commonest game-bird. It was generally observed in coveys of four or five.

Francolinus sephæna grantii.

Francolinus grantii Hartlaub, P. Z. S. 1865, p. 665, pl. 39 fig. 1 [Unyamuezi].

Francolinus sephæna grantii C. Grant, Ibis, 1915, p. 10.

1. ♀ ad. Tsavo River. 20th July. Wing 138 mm.
2. ♂ ad. ,, 22nd July. ,, 140 mm.
3. ♂ ad. ,, 28th July. ,, 158 mm.
4. ♀. Ithanga Hills. 5th October. ,, 141 mm.

Specimen No. 3 is unusually large for this race, but agrees in other respects, being much redder above than Neumann's description of *F. s. schoensis* (Neumann, J. f. O. 1904, p. 357).

Iris brown or hazel; bill dark; legs red, pink in No. 3.

Very common in the bush along the Tsavo. Its call was always to be heard in the morning and evening. It occasionally perched on a tree when flushed. I only saw one or two on the Thika.

Francolinus coqui coqui.

Perdix coqui Smith, Rep. Exp. C. Afr. 1836, p. 55 [Kurrichaine].

Francolinus coqui Reichw. Vög. Afr. i. 1901, p. 492.

♂ ad. Ithanga Hills. 8th October. Wing 137 mm.
♂. ,, 27th September. ,, 140 mm.

Iris light brown; bill dsrk; legs yellow.

This Francolin was not very numerous. When flushed it made for the nearest thick cover, and was exceedingly hard to put up again.

XX.—*What is* Turdus minutus *Forster, from Cook's "Botany Island."* By L. Brasil, F.M.B.O.U.

Under the name *Turdus minutus*, J. R. Forster described two very different birds *. The first one, obtained in New Zealand, is, as everybody knows, the "Great-headed Titmouse" of Latham †, upon which was founded Gmelin's *Parus macrocephalus* ‡, *Myiomoira macrocephala macrocephala* of the present nomenclature. In Forster's 'Unpublished Iconography' this bird is represented on plate No. 149, where, according to Sharpe §, the figure is accompanied by the mention of "Queen Charlotte Sound, New Zealand," as the locality. The second bird, the one observed on Cook's "Botany Island" ||, in the close vicinity of New Caledonia, has not been identified hitherto with any of the species now known. It would seem that nobody has seen it again since it was discovered, and as the specimen brought over by Cook's Expedition has disappeared a long time ago, even if it was ever introduced into Europe at all at the time, it is only by going back, directly or otherwise, to the original description that a few authors have been able to speak of the bird. Before regarding it as a distinct and unnamed species, which he calls *Petroica forsteri* ¶, Gray had first spoken of it rather vaguely as *Petroica ...... (?)* **. It is under one of those expressions that it was later on introduced into the works of

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* J. R. Forster, Descr. Anim. 1844, p. 83.

† Latham, Gen. Syn. ii. 1783, p. 557, pl. lv..

‡ Gmelin, Syst. Nat. i. 1788, p. 1013.

§ R. B. Sharpe, Hist. Coll. Nat. Hist. Brit. Mus. ii. 1906, p. 195.

|| The sandy islet to which the name of Botany Island was given by Cook is called to-day on the French maps "l'Ile Amère" ("l'Ile Améré" on Commandant Laporte's map, published in 1900). It lies on the western edge of the group of reefs which separates the "Canal de la Havannah" from the "Passe de la Sarcelle." Its distance from the southern coast of New Caledonia is about 18 km.; on the other hand, it lies about 25 km. from the northern side of Kunié (Isle of Pines).

¶ G. R. Gray, Cat. Birds Trop. Isl. Pacific Oc. 1859, p. 15.

** G. R. Gray, Proc. Zool. Soc. London, 1859, p. 161.

Verreaux and Des Murs [*], Marie [†], and the Layards [‡]. We must notice that the latter two naturalists, who have so carefully studied the ornithological fauna of New Caledonia and collected so many specimens themselves, mention expressly that they never obtained the species we are speaking of. Sharpe, then, thought it was right to suppress it from the world of birds, and to strike it out of nomenclature. This he does in the following terms [§] :—

"This bird (*Petrœca forsteri* Gray) is mentioned here merely for the purpose of showing that it is a myth. Mr. Gray refers as a synonym the name of *Turdus minutus* Forster (*Descr. Anim.* p. 84), but this, from the figure and description, is *Petrœca macrocephala* of New Zealand. At page 257 of the same work, Forster casually mentions having observed *Turdus minutus* on Spruce-Tree Island, New Caledonia ; and this is apparently Mr. Gray's authority for naming the species *Petroica forsteri*, on the chance of its turning up in the locality. Should a *Petrœca* occur in New Caledonia, it would very likely be *P. similis* of the New Hebrides."

These lines show in a very striking way what mistakes an author is liable to make when the references made have not been carefully looked up. Had Sharpe opened Forster's work, p. 84, quoted by Gray, he would have realised that there was no need of Forster's assertion, p. 257, to determine Gray to create his *Petroica forsteri* ; the description, p. 84, of a specimen found *not* in New Zealand, but precisely in one of the islands of the New Caledonian archipelago, easily proves that the form mentioned is very different from the bird which had been caught by Forster in New Zealand, drawn by his son, and a most correct and detailed description of which is to be found in his book, p. 83. Comparing the two descriptions, we see directly that the birds have nothing in common—neither the size nor the colour of the plumage[*]. On the other hand, we have no right to suspect so true and scrupulous an author as Forster of having described a bird which never existed, or of having altered any diagnosis to please his fancy. Instead of looking upon *Petroica forsteri* as "a myth," we are inclined to believe that, supposing the species has not become extinct like so many others since the time of Cook's Voyages in the Southern Seas, it simply has been mixed with another and hidden under its name. By taking up that line and seeking,—not very far—, I am sure Sharpe would have found the solution of the problem.

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[*] J. Verreaux et O. Des Murs, Rev. et Mag. Zool. (2) xii. 1860, p. 391.

[†] E. Marie, Actes Soc. Linn. Bordeaux, xxvii. 1870, p. 327.

[‡] E. L. & E. L. C. Layard, Ibis, (4) ii. 1878, p. 254.

[§] R. B. Sharpe, Cat. Birds Brit. Mus. iv. 1879, p. 179 note.

Let us go back to the original description. After having largely given the characters of his *Turdus minutus* from New Zealand, Forster fully describes the bird of Botany Island, thus[†]:—

"Aliud hujus aviculae specimine in insula *Botany* ad Eurum Novae Caledoniae sita, accepi et sic descripsi: (Femina erat).

"*Rostrum* atrum, basi trigonum, rectum, apice incurvum; *Mandibula superior* longior, ante apicem emarginata. *Faux* vibrissis patentibus cincta. *Lingua* cartilaginea, ensiformis, subtruncata, bifida, ciliata. *Nares* oblongae, squamula tectae. *Oculi* iride fusco-nigricante. *Pedes* graciles, longiusculi, fusco-nigri. *Tibiae* nulla incisura. *Ungues* nigri; *posticus* longior. *Caput* et *genae* cinerea. *Dorsum* et *uropygium* fusco virentia. *Superciliada* (albi non alba). *Gula*, *pectus* et *crissum* alba. *Abdomen*, *hypochondria* et *femora* flavescentia. *Alae* complicatae medium circiter caudae attingunt. *Remiges* fuscae, marginibus flavo-virentibus. *Remex* 4ta longissima. *Alae* subtus fusco-fuliginosae. *Cauda* cuneata. *Rectrices* (4 extimae quae tantum in specimine nostro aderant, reliquis sclopeto evulsis) fuscae, tertia parte ad apicem nigrae, marginibus extimis flavo-virentibus, 6ta extima utrimque macula ante apicem obliqua alba, 5–3 margine interiore ante apicem macula rotundata alba.

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[*] The opinion that the two birds belong to a single species does not seem to have been that of the companions of Forster. Going over all the natural productions of Botany Island, does not Cook himself say (I am only able to make use of a French translation):—"Un des officiers tira un faucon pareil à ceux qu'on trouve sur les côtes d'Angleterre (*Falco Haliäetos*, voyez la zoologie britannique de M. Pennant), & nous prîmes une nouvelle espèce d'attrappe-mouche" (Cook, *Voy. dans l'Hémisph. austr.* Trad. franç. v. pp. 60–61, 1778). This *new* kind of "attrappe-mouche" evidently stands for the second specimen of *Turdus minutus* in Forster.

[†] J. R. Forster, *loc. cit.* p. 84.

“ *Mensurae.*

“ Ab apice rostri ad extremum caudae	3	5/8	unc.
— — — ad unguem digiti medii	3	3/4	—
Alae expansae	9		—
Cauda	1	5/8	—
Pedes cum femoribus	2		
Rostrum ad faucis angulum		1/2	—
— in fronte		3/16	— ”

It seems to me difficult to understand how it is Gray was not able to recognise in so exact a portrait the bird J. Macgillivray had brought back from Nu Island and which he had himself described under the name of *Acanthiza flavolateralis* *, a common bird in every part of New Caledonia, known in our days under the same specific name but classed in the genus *Pseudogerygone.* It is indeed sufficient to have a specimen in one's hand to see that Forster's description fits in every particular, size, colour, anatomical characters, so far as they can be observed. In the absence of any representative of the species, the same result is also obtained from a comparison of the texts, particularly if we go back for *Pseudogerygone flavolateralis,* not to Gray's original description of it, but to the more complete description of Sharpe, drawn up from the type-specimen preserved in the British Museum. I have already given Forster's description of his *Turdus minutus* from Botany Island ; to make a comparison easier, I am now giving that of the type of *Acanthiza flavolateralis,* borrowed respectively from Gray and Sharpe.

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* G. R. Gray, Proc. Zool. Soc. London, 1859, p. 161, no. 9.

"*Acanthiza flavolateralis.*

"Head and upper part of neck cinereous; back olivaceous; quills blackish-fuscous, margined with olive; throat, breast, middle of the abdomen, and a line from nostril to above the eye cinereous white; sides of abdomen bright yellow; tail fuscous, lateral feathers black, marked near the tip of each with white; bill and feet black. Length 3″ 8‴, wings 2″ 1‴." (G. R. Gray, *Proc. Zool. Soc. London*, 1859, p. 161, no. 9.)

"*Pseudogerygone flavilateralis.*

"*Adult* (type of species). General colour above olive, the head and neck ashy, extending on to the mantle; the rump a little more yellow than the back; wing-coverts olive, slightly shaded with ashy; greater series and primary-coverts dark brown, the former broadly, the latter narrowly edged with pale olive-yellow; quills dark brown, narrowly margined with olive-yellow; tail-feathers light brown, edged with olive, all but the centre feathers with a large white spot at the end of the inner web, increasing in extent towards the outermost, where it forms a subterminal bar across the feather; all the feathers with a broad subterminal shade of black; lores greyish white, forming also a narrow line above the eye; in front of the eye a dusky spot; round the eye a ring of greyish-white feathers; ear-coverts and sides of neck ashy brown like the head; cheeks and under surface of body ashy white, with a browner shade on the chest and sides of the breast, the under tail-coverts slightly tinged with yellow; sides of the body pale lemon-yellow; under wing-coverts and axillaries white, with a slight wash of pale yellow; quills brown below, margined with white along the inner web. Total length 3·6 inches, culmen 0·4, wing 2, tail 1·6, tarsus 0·7." (R. B. Sharpe, *Cat. Birds Brit. Mus.* iv. 1879, p. 222.)

There is, in my opinion, absolutely no room left for a doubt, and, if the authors who later on have studied the ornithological fauna of New Caledonia have never thought of the comparison I have just made clear, it is apparently that, placing their entire confidence in Gray's works, they have, in the present case, blindly copied them, without going back to the sources.

I must add that it is the same *P. flavolateralis* which is mentioned as *Muscylva* ...... *(?)* by Jouan in his Catalogue of New Caledonian Birds *.

No alteration fortunately has to be made in the nomenclature now in use. The name proposed by Forster belongs only to the bird found in New Zealand, of which we have first spoken; it gives way, besides, before *Parus macrocephalus* Gmelin, which has a considerable priority. On the other hand, in Gray's work, *flavolateralis*, which is previous to *forsteri*, must be preferred; *forsteri* could just be used as a subspecific designation in case a special form should be found in the locality where Cook's Expedition noticed the bird.

In conclusion, without going any further than the publication of the British Museum Catalogue, vol. iv., the synonymy of *Pseudogerygone flavolateralis flavolateralis* † must be established as follows:—

Turdus minutus J. R. Forster, Descr. Anim. 1844, p. 84 (*tantum*) (*Insula Botany*).

Acanthiza flavolateralis G. R. Gray, Proc. Zool. Soc. London, 1859, p. 161 (*Island of Nu*).

Petroica ...... ? G. R. Gray, Proc. Zool. Soc. London, 1859, p. 161.

Petroica forsteri G. R. Gray, Cat. Birds Trop. Isl. Pacific Oc. 1859, p. 15.

Acanthiza flavolateralis G. R. Gray, Cat. Birds Trop. Isl. Pacific Oc. 1859, p. 15.

Petroica ...... ? J. Verreaux & O. Des Murs, Rev. et Mag. Zool. (2) xii. 1860, p. 391.

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* H. Jouan, Mém. Soc. Imp. Sc. Nat. Cherbourg, ix. 1863, p. 219, no. 18.

† A Lifu form has been distinguished by F. Sarasin under the name of *P. flavilateralis lifuensis* (Vög. Neu-Caled. und Loyalty-Ins. p. 21, 1913).

Acanthiza flavo-lateralis J. Verreaux & O. Des Murs, Rev. et Mag. Zool. (2) xii. 1860, p. 391.

Acanthiza flavolateralis J. Verreaux & O. Des Murs, Rev. et Mag. Zool. (2) xii. 1860, p. 435.

Acanthiza flavo-lateralis J. Verreaux & O. Des Murs, Rev. et Mag. Zool. (2) xiv. 1862, p. 132.

Muscylva ...... ? H. Jouan, Mém. Soc. Imp. Sc. Nat. Cherbourg, ix. 1863, p. 219, no. 18.

Acanthiza flavolateralis G. R. Gray, Hand-list Birds, i. 1869, p. 219.

Petroica fosteri (*sic*) G. R. Gray, Hand-list Birds, i. 1869, p. 228.

Petroica sp.? E. Marie, Actes Soc. Linn. Bordeaux, xxvii. 1870, p. 327.

Acanthiza flavo-lateralis E. Marie, Actes Soc. Linn. Bordeaux, xxvii. 1870, p. 327.

Acanthiza flavilateralis C. G. Giebel, Thes. Ornith. i. 1872, p. 258.

Acanthiza flavolateralis A. Boucard, Cat. Av. 1874, p. 153.

Petroica fosteri (*sic*) A. Boucard, Cat. Av. 1874, p. 178.

Gerygone flavolateralis E. L. & E. L. C. Layard, Ibis, (4) i. 1877, p. 357.

Petroica sp.? E. Marie, Ibis, (4) i. 1877, p. 362.

Acanthiza flavolateralis E. Marie, Ibis, (4) i. 1877, p. 362.

Petrœca sp.? E. L. & E. L. C. Layard, Ibis, (4) ii. 1878, p. 254.

Gerygone flavolateralis E. L. & E. L. C. Layard, Ibis, (4) ii. 1878, p. 254.

Gerygone flavolateralis H. B. Tristram, Ibis, (4) iii. 1879, p. 182.

Pseudogerygone flavilateralis R. B. Sharpe, Notes Mus. Leyden, i. 1879, p. 30.

Petrœca forsteri R. B. Sharpe, Cat. Birds Brit. Mus. iv. 1879, p. 176.

Pseudogerygone flavilateralis R. B. Sharpe, Cat. Birds Brit. Mus. iv. 1879, p. 222.

XXI.—*Notes on Birds recently observed in Macedonia.*
By Captain ALEX. G. L. SLADEN, R.E.

IN writing these notes on the avifauna of Macedonia, I have been careful to give only such facts as I can personally vouch for as to species identified, and in every one of the following cases I have myself had the specimen in my hands, except when so stated. I say this because, although there are undoubtedly capable ornithologists in this country, I have had statements made to me as to the existence of species which on investigation proved wholly incorrect. My informant, having trusted entirely to his impressions of birds on the wing, and never having handled the specimen, has fallen into error which, if perpetuated, would extend rather than advance the investigation of this interesting subject. I have kept a very careful diary from day to day, when possible, in which all my observations have been recorded, both of identified and unidentified species, together with notes of wind and weather, and I am hoping that I shall be able some day to collate these notes and illustrations which I trust may be of interest to other ornithologists.

On the front occupied by British troops in Macedonia the country varies from flat marshy ground bordering lakes partially covered by rushes, to rocky undulating ground resembling almost exactly the hilly country of Wales; some of this is bare but for a few thorn-bushes, and in other parts the country is covered with stunted oak-bushes and in some cases oak-trees of various ages. One of the first birds which attracted my attention on my arrival was the Little Bustard (*Otis tetrax*). During the winter large flocks of these frequent the flat country, showing a decided preference for cultivated land. Their flight is so strong and like that of a wild fowl that, for a time, until I obtained a specimen, I took them to be some small species of Goose. It was now a matter of considerable interest as to whether a few of these birds remain to breed, for at the time of writing (May 1) I still find four or five pairs frequenting similar ground having assumed the black and white band on the neck, which I take to be their summer plumage. I shot two of these birds in December and one on March 31, the last of which was then just assuming this plumage.

Of the Turdidæ there are, so far as my observation goes, none left in the district now, but during the winter *Turdus musicus*, *T. merula*, *T. viscivorus*, *T. iliacus*, and *T. pilaris* all put in an appearance. The Corvidæ are well represented. *Corvus corax* is common and remains throughout the year, almost certainly breeding in the high ranges of mountains. *Corvus cornix* is common during the winter months, but, though I suspect him to be a resident, I cannot say that I have noticed him for the last two months. There is a bird which closely resembles the Hooded Crow (*C. corone*), but as pairs of them are still common and I have not yet handled a specimen, I hesitate to say anything more about it. *C. frugilegus* was during the winter the commonest of all the family. I have seen dense black masses of thousands feeding on a few square yards of horse-lines in an abandoned camp or whilst the horses were at exercise. They all appear to have migrated. The Jackdaw is particularly worthy of notice because this species appears to be a variety of the British species. It differs by having in almost every case a very light, almost white ring round the neck where the grey feathers end. It is no doubt *C. monedula collaris*. Another curious variety which I constantly notice has a dull rusty-red colouring extending over the primary, secondary, and tertiary wing-feathers. The species is exceedingly common, remains throughout the year, and breeds. *Pica rustica* is everywhere: when there are no trees it nests in thick low bushes. A native interpreter brought me a nest containing eight eggs and declared that three of them were laid by "the lazy one," which I assume referred to the Great Spotted Cuckoo (*Clamator glandarius*), but, as I have not seen this bird up to the present, I cannot vouch for the accuracy of this. *Garrulus glandarius* is not uncommon in suitable localities, but I am unable to say if it remains to breed. Of the Alaudidæ the only species which I have identified are the Skylark (*Alauda arvensis*), Crested Lark

(*Galerida cristata*), and the Calandra Lark (*Melanocorypha calandra*). I have found the last two breeding.

The Raptores are here in large numbers, and, although my list of identified species is small, I have made careful notes of many others I have shot, and with the assistance of more experienced ornithologists I have no doubt that many interesting additions will eventually be made. One of the most interesting things which I have ever seen was the nest of a White-tailed Eagle (*Haliaëtus albicilla*). Let me say at once that I did not have this specimen in my hands, but I had exceptional opportunities of examining both male and female at only a short distance with the aid of field-glasses on many occasions during nidification, and I think the identification may be taken as being good. This nest was a huge structure of sticks in a tree some thirty feet from the ground on the bank of the Vardar River. It was on the 30th of March that I and another officer made the expedition. Climbing up to the nest I found two young about five days out of the egg and the usual complement of flies which were attracted by the larder. Two fish, a carp and a pike, each about 2 lb. in weight, and a mallard with head and skin removed lay on the nest. These birds, whilst not plentiful, are fairly frequently met with. The Hen-Harrier (*Circus cyaneus*) was exceedingly common all the winter, but has now disappeared. The Kestrel (*Falco tinnunculus*) is extremely common and breeds in considerable numbers in the roofs of houses in evacuated villages. The Red-footed Falcon (*F. vespertinus*) made its first appearance on April 23. The next day I noticed literally hundreds hawking about near a lake apparently for insects. They were very tame, and I secured a male and female. Their stomachs contained small winged insects and beetles. This bird appears to take its insect prey with its feet, and one sees it constantly close its wings and bending the head forward take something from its talons. All this time it is dropping in the air, but the process is so rapid and so gracefully performed that it has only fallen three or four feet before it is again resuming its flight. I took a specimen of *Accipiter nisus* in January, but this species can hardly be described as being common. *Falco peregrinus* I have also identified, and as there are numerous suitable nesting-places I have no doubt it remains to breed. *Milvus milvus* is one of the commonest of the larger Raptores, whilst the Common Buzzard (*Buteo buteo*) is almost equally plentiful. There are many other species which I hope to identify as time goes on.

The Herons are well represented, and there are at least six species, including the Common Heron, all of which, with the exception of two, I have obtained. *Botaurus stellaris* is comparatively common and its booming note is often heard. The Glossy Ibis (*Plegadis falcinellus*) arrived about April 7. At present the flock of about 200 birds has shown no signs of breaking up. Terns began to arrive about April 23. These are almost all Black Terns, but a few White-winged Black Terns and a smaller number of Common Terns also arrived. There are now thousands of the first species, and as the locality appears highly suitable I have little doubt that they will soon breed. The Waders, never very easy, have been particularly hard to secure and identify, and I can only give three—the Redshank (*Totanus totanus*), the Black-winged Stilt (*Himantopus himantopus*), of this I have only seen two, and the Lapwing (*Vannellus vannellus*). Much discussion locally has been occasioned by statements regarding the "Grey Geese" which frequented one part of the country in thousands during the winter. They were generally described as Grey-lag Geese, but some other ornithologists declared them to be White-fronted Geese (*Anser albifrons*). For myself I can only say this, that I had only one opportunity of handling a bird which was shot about March 10 by an officer of the A.V.C. This specimen was a Grey-lag. Possibly both species have been taken. About seventeen of these Geese still frequent the neighbourhood; sometimes they fly in pairs, sometimes singly, and at other times the whole flock can be seen grazing together.

A further detailed description can only become monotonous, so I append a list which covers most, if not quite all, the birds identified up to date. Those marked with an asterisk have been identified at the Natural History Museum from specimens sent home.

B = Breeds. PB = Probably breeds. R = Resident. PR = Partially resident.

Dates indicate first observed appearance of migrants.

Corvus corax. R. PB.
,, cornix.
,, m. collaris. R. PB.
,, frugilegus.
Pica pica. R. B.
Garrulus glandarius.
Oriolus oriolus. 1/v.
Carduelis carduelis. PR. PB.
*Serinus serinus. 11/iii.
Passer domesticus. R. B.
,, montanus. R. B.
Fringilla cœlebs.
*Acanthis cannabina.
Emberiza citrinella.
* ,, cirlus. R. PB.
* ,, melanocephala.
* ,, hortulana.
* ,, cia.
,, miliaria. R. B.
Alauda arvensis. PR.
*Lullula arborea.
Galerida cristata. R.
*Calandrella brachydactyla.
Melanocorypha calandra. RB.
Anthus pratensis.
* ,, campestris.
Sitta cæsia. RB.
Regulus regulus.
Parus major.
,, ater.
,, cæruleus.
* ,, lugubris. 11/iii.
*Lanius minor.
* ,, collurio.
Sylvia communis. B. 20/iii.
*Cettia cetti.
*Cisticola cisticola.
*Acrocephalus schœnobænus.
Turdus viscivorus.
,, musicus.
,, iliacus.
,, pilaris.
,, merula.
Phœnicurus titys.
Erithacus rubecula.
Luscinia megarhyncha. B. 4/iv.
*Saxicola rubicola. R. B.
,, rubetra. PB. 30/iv.
*Œnanthe hispanica xanthomelæna.

Troglodytes troglodytes.
Hirundo rustica. B.
Delichon urbica.
Riparia riparia.
Dryobates major. R. B.
Picus viridis.
Cuculus canorus. PB. 10/iv.
Upupa epops. PB. 25/iii.
*Bubo b. bubo.
Circus cyaneus.
Buteo buteo. R. B.
Milvus milvus. R. B.
Falco tinnunculus. R. B.
* ,, vespertinus.
Phalacrocorax carbo.
Anser anser. PB?
Anas boschas. R. PB.
Querquedula crecca. R. PB.
Spatula clypeata. R. PB.
Ardea cinerea.
* ,, purpurea.
Botaurus stellaris. R. B.
Plegadis falcinellus. 7/iv.
Otis tetrax. PR.
*Glareola pratincola.
Scolopax rusticola.
Gallinago gallinago. PR.
,, media. Shot 2/iv.
Limnocryptes gallinula.
*Tringa minuta.
* ,, subarquata.
Totanus totanus.
* ,, glareola.
Himantopus himantopus.
Recurvirostra avocetta.
Sterna hirundo. 26/iv.
* ,, minuta.
Hydrochelidon nigra. 23/iv.
,, leucoptera. 24/iv.
Gallinula chloropus.
Fulica atra.
Columba œnas.
,, palumbus.
Steptopelia turtur. R. PB.
Phasianus colchicus. R. B.
Caccabis rufa? R. B.
Perdix perdix. R. B.
Coturnix coturnix. PR. PB.

XXII.—*Obituary.*

HENRY PEAVOT.

ALL members of the Union, and especially those who may have been brought in personal contact with him, will deeply regret to hear of the death of Mr. Henry Peavot, killed in action in France on April 21 last.

Born in 1881, Peavot entered the service of the Zoological Society as a boy-clerk in 1896. He soon showed his worth by his quickness and intelligence, and in 1908 he was appointed to succeed the late Mr. G. H. Doubleday as clerk of publications, and at the same time was appointed assistant secretary to the British Ornithologists' Union. This position brought him into contact with many of our members, and all of these can testify to his great willingness to help in any way the management of the affairs of the Union. He was responsible for the compilation of the indices to the successive volumes of 'The Ibis,' and jointly with Mr. Wells prepared the index volume of 'The Ibis' for 1895–1912, published last year. It is impossible to speak too highly of his competence and personal character, and his death is indeed a great loss to the Union. It will be very difficult to replace him. He leaves a widow (who has been carrying on his work for the Zoological Society and the Union since he was called up for service) and one child.

The Council of the Zoological Society proposes to form a fund to secure a good education for Mrs. Peavot's little boy, and the Committee of the British Ornithologists' Union wish to associate themselves with the Council in this matter. With this copy of 'The Ibis' is enclosed a circular letter from Dr. Chalmers Mitchell, the Secretary of the Zoological Society, asking all those who are willing to contribute to this good cause to send the amount of their contribution to him. We hope there will be a good response from members of the Union.

We also learn with regret of the death of Mr. E. P. RAMSAY, for many years Curator of the Australian Museum at Sydney. We hope in the October number to give a short biographical notice.

From 'Nature' we hear of the death from wounds received in action in France of 2nd Lieut. H. E. O. DIXON, Seaforth Highlanders—a promising bird-artist, whose work was largely modelled on that of Archibald Thorburn.

The 'Ornithologische Monatsberichte' of last year reports the death at the age of sixty-two of ADOLPH NEHRKORN, which took place at Brunswick on 8 April, 1916. Born at Riddagshausen near Brunswick in 1844, he was an original member of the German Ornithological Society. He was celebrated for his great collection of birds' eggs, both European and Exotic, and the first edition of his well-known catalogue was published in 1899 (see 'Ibis,' 1899, p. 462). In 1905 the collection was presented to the Berlin Museum, and five years later a second edition of the catalogue was issued ('Ibis,' 1910, p. 752). In it are enumerated the names of 5440 species, the eggs of which are represented in the collection.

The 'Ornithologische Monatsberichte' also announces the death of OTTO LE ROI, Lieutenant of the Reserve, killed in action in the Carpathians in October 1916. Otto le Roi was the author of the "Vogelfauna der Rhein Provinz," and was associated with Dr. A. Koenig of Bonn in his work 'Avifauna Spitzbergensis.'

XXIII.—*Notices of recent Ornithological Publications.*

Chapin on the Ploceidæ.

[The Classification of the Weaver-birds. By James P. Chapin. Bull. Amer. Mus. N. H., New York, xxxvii. 1917, pp. 243–289, pls. vi.–x.]

The classification of the Weaver-birds has long been in a somewhat unsatisfactory condition; it has been based on the condition of the outer or tenth primary. In some genera this feather is large and well developed, and exceeds half the length of the next or ninth; in other cases it is quite minute and is shorter than the primary-coverts. This distinction is by no means a sharply-defined one and in some genera hardly holds good, some of the species falling into one group and some into another; moreover, it separates such forms as the Whydahs (*Coliuspasser*) and the Bishop-birds (*Pyromelana*) from the typical Weavers (*Ploceus*), to which they have many affinities, and allies them to the Waxbills and other small forms such as *Estrilda*.

Mr. Chapin proposes, first of all, to remove entirely from the family the genera *Textor* and *Dinemellia*, which can be distinguished by important modifications of the skull in the matter of the arrangement of the orbital foramina and in the form of the spina interna of the sternum. These and other peculiarities entitle *Textor* and *Dinemellia* to rank, in the opinion of Mr. Chapin, as a distinct family—Textoridæ.

He proposes to divide the Ploceidæ into two subfamilies, for which he retains the old names Estrildinæ and Ploceinæ. The first of these—the Weaver-Finches—are distinguished by the fact that the nestlings almost always have dark pigmented spots or lines in their mouths and often wattles at the gape; the nests are not pensile or really woven; the eggs are white; and, as a general rule, the outer (tenth) primary is shorter than the primary-coverts. All the smaller forms of Waxbills, Negro-Finches, Silverbills, Mannikins, etc., etc., come in this subfamily.

The Ploceinæ or Weaver-birds proper lack the mouth-marks and the gape-wattles in the nestlings; they weave their nests, which are pensile and generally rounded or retort-shaped, often with a funnel-like opening; the eggs are usually coloured and spotted; and the outer primary is very generally longer than the primary-coverts. To this group belong the true Weavers, the Whydahs, and Bishop-birds.

The position of *Philetairus*, which builds the extraordinary social nests in the drier parts of South Africa and which is sometimes included among the Finches, is discussed. Mr. Chapin is inclined, on the whole, to include it among the Ploceidæ, notwithstanding its very tiny concealed outer primary, resembling that of the Fringillidæ, and places it near *Ploceipasser* in the subfamily Ploceinæ.

Another genus whose position is considered is *Parmoptila*, which is confined to the West African subregion. The members of this genus, four in number, are small and inconspicuous, and have slender bills. Sharpe in the Catalogue referred them to the Dicæidæ, but in the Hand-list followed Shelley in placing them in the Sylviidæ, while Reichenow placed them with the Titmice. Mr. Chapin, who has been fortunate enough to observe *P. jamesoni* alive in the Congo forest, is convinced that this genus should be referred to the Ploceidæ and that it should be put near *Nigrita* among the Estrildinæ, and he was further confirmed in his opinion by finding that the nestling had a spotted mouth as well as gape-wattles.

An appendix contains a survey of the characters of each of the Ploceid genera, so far as is at present known. No worker on African Ornithology can afford to neglect this most interesting and suggestive paper, but at the same time it must be pointed out, as the author himself admits, that our knowledge of the facts about many of the rarer genera is at present very scanty, and a great deal more investigation must be undertaken before his conclusions can be universally accepted.

Chapman on new Antillean Birds.

[Descriptions of new Birds from Santo Domingo and Remarks on others in the Brewster-Sanford Collection. By Frank M. Chapman. Bull. Amer. Mus. N. H., New York, xxxvii. 1917, pp. 327–334.]

Mr. R. H. Beck, who has been collecting for Messrs. Brewster and Sanford in South America, has recently passed several months in Santo Domingo collecting both on the coast and in the mountainous interior, and Mr. Chapman in this paper describes three interesting new species obtained there. These are *Oreopeleia leucometopius*, sp. n., a Ground-Dove allied to *O.* [or *Geotrygon*] *caniceps* of Cuba, but very distinct not only in markings but in the form of the primaries; *Microsiphonorhis brewsteri*, gen. et sp. n., a Goat-sucker or Night-Hawk near *Siphonorhis americanus* of Jamaica which is supposed to be now extinct; and *Microligea montana*, sp. n., allied to but obviously specifically distinct from *M. palustris* (Cory) of the same island and the only known species of the genus up to now.

Mr. Chapman appends some interesting remarks on *Loxia megaplaga*, the Santo Domingan White-winged Crossbill, and *Brachyspiza capensis antillarum*, both described last year by Mr. Riley (see *supra*, p. 256), of which a good additional series was secured by Mr. Beck.

Clark and Adames' Phenological Observations.

[Report on the Phenological Observations in the British Islands, from December 1914 to November 1915. By J. Edmund Clark, B.A., B.Sc., and Henry B. Adames, F.R.A.S. Quart. Journ. R. Meteor. Soc. xlii. 1916, pp. 233–265.]

The results of the observations made by numerous correspondents in the British Islands on the earliest dates of the flowering of certain selected flowers and the first appearance of certain birds and insects are all here presented in a series of tables. They are arranged to show the differences from the mean of series of years. Thus in the spring of 1915 the mean date for the first hearing of the song of the Song-Thrush was January 17, five days earlier than the 25 years' mean, January 23. The mean date for the first Swallow of 1915 was April 22, four days later than the mean date, April 18. The Cuckoo's mean was April 28, four days late, and the Flycatcher's May 10, five days early. In addition to these observations, continuously recorded for twenty-five years, the authors commenced in 1914 a new table with observations on the arrival-date of some twenty of the commoner migrants. This will undoubtedly eventually be of great value in fixing the average arrival-date of these species, but at present the observations have not yet continued through a sufficient number of years to make any definite deductions.

We should like to draw the attention of all those interested in migration, and especially the members of the migration committee of the B. O. C., to these valuable reports and tables. As they are published in a journal not usually consulted by ornithologists, there is some risk of their escaping notice.

Dixon on the Yellow-billed Loon.

[Migration of the Yellow-billed Loon. By Joseph Dixon. Auk, xxxiii. 1916, pp. 370-376.]

Mr. Dixon, who spent a considerable time during 1913 and 1914 on the arctic coast of Alaska, corroborates to a great extent the late Prof. Cooke's views on the subject of the migration route of the Yellow-billed Loon (*Gavia* or *Colymbus adamsi*) mentioned in 'The Ibis' (1916, p. 358). Although he and his companions noticed numbers of these birds in June and early July, no evidence of nesting or breeding was obtained, and the spring migration route appears to run from eastern Asia to Bering Strait, Point Barrow, and the Mackenzie Delta, and thence probably up the Mackenzie River to breeding-places in the interior. No evidence of the return autumnal migration was obtained by Mr. Dixon.

Grinnell on limitations of distributional areas.

[Field tests of theories concerning Distributional Control. By Joseph Grinnell. Amer. Nat., New York, li. 1917, pp. 115–128.]

In this thoughtful article Mr. Grinnell discusses the various factors which exert a control on the ranges of various animals. Among these may be mentioned humidity, temperature, food-supply, cloudiness, and of course land- and sea-barriers. He then takes the case of certain selected birds and mammals, and endeavours to show what factors have in each case limited their distribution. The case of the Oregon Jay (*Perisoreus obscurus*), a close ally of the Canada Jay or Whiskey Jack, is especially interesting. This bird is only found in the northern parts of California. Even there it is very local in its occurrence and absolutely non-migratory. In the north-eastern part of the interior of California it is found in the Warner mountains and on Mt. Shasta, from about 7000 feet to timber-line, and is unknown below that level; but in the north-west along the Pacific coast it re-occurs in the forests near the sea, but here it rarely ranges higher than 300 or 400 feet above sea-level, although there are mountains not far inland rising to several thousand feet.

After an examination of all the possible factors to explain this curious anomaly, Mr. Grinnell came to the conclusion that it is due to a cool summer temperature, which is very marked on the Pacific coast, owing to the sea-breezes from the ocean, and this approximates to the summer temperature of the Warner and Shasta mountains at 6000 or 7000 feet in the mountains of the interior, while in the country between the summer temperature is far higher. On the other hand, the winter climate of the coastal area is of course far milder than that of the mountains. In this case there can be no question of humidity as Humboldt Bay, the coast-locality, is the most humid and rainy area of the State, whereas the Warner and Shasta mountains are relatively arid. The critical factor therefore in this case is summer temperature.

Another interesting case considered at length by Mr. Grinnell is that of the Western Meadow-lark (*Sturnella neglecta*). This bird is essentially an inhabitant of grassy plains and meadows, and wherever these are found throughout California there are Meadow-larks, except above the 4500-foot level. Although there are plenty of meadow-lands above that altitude in all parts of the mountains, no Meadow-lark reaches them. In this case, too, there can be little doubt that summer temperature is again the principal limiting factor.

Several other cases are discussed, and the final conclusion is reached that, although the summer temperature is of great importance—perhaps of the greatest importance—as a limiting factor, other controlling agents must be taken into consideration, and each problem must be considered by itself and all the various factors examined if a satisfactory conclusion is to be reached.

Grinnell on the Evening Grosbeak.

[The subspecies of *Hesperiphona vespertina*. By Joseph Grinnell. Condor, xix. 1917, pp. 17–22.]

The Evening Grosbeak is a handsome but somewhat scarce bird, and is found over the greater part of North America. Only two subspecies have been hitherto recognised—the typical eastern (*Hesperiphona v. vespertina*) and a western one (*H. v. montana*). This latter form was described by Ridgway in 1874, but no type-locality was mentioned or type-specimen indicated in the original description. Subsequently a specimen in the U.S. National Museum from Cantonment Burgwin in New Mexico was considered the type of *H. v. montana*, and was so published by Mearns in 1890. Mr. Grinnell, however, considers that as the drawings illustrating Ridgway's original description were made from another specimen, also in the U.S. National Museum, obtained near Vera Cruz, this individual should be considered the type, and Mexico near Vera Cruz the type-locality.

Finally, Mr. Grinnell, from the examination of over a hundred skins from all parts of North America, finds it necessary to recognise three new subspecies in addition to the original *H. v. vespertina* and *H. v. montana,* which latter is confined to Mexico and southern Arizona. These are *H. v. brooksi* from British Columbia west of the Rockies, *H. v. californica* confined to California and southern Oregon, and *H. v. warreni* from Colorado to New Mexico and northern Arizona.

The characters given for discriminating these subspecies are not very marked ones—proportions of bill, width of frontal band and colour-tones generally; but probably with a large series it may be possible to distinguish the five forms. It need hardly be added that the Evening Grosbeak is a great wanderer in winter, and the ranges given are the probable summer ones.

Gurney's Report on Norfolk Ornithology.

[Ornithological Notes from Norfolk for 1916. 23rd Annual Report. By J. H. Gurney, F.Z.S. British Birds, x. 1917, pp. 230-244.]

Mr. Gurney's Norfolk Notes are published in 'British Birds' instead of the 'Zoologist' as formerly, since the latter journal has now become extinct. The notes also are now arranged under species and general headings instead of in diary form as heretofore—a very great improvement.

Mr. Gurney has a good deal to say about the Rook question, and does not seem quite satisfied that their beneficial actions balance those detrimental to agriculture. Although during the early ploughing they undoubtedly destroy and consume the grubs of many noxious insects—crane-fly, wire-worm, and cockchafer, yet at the same time they do much damage. When the frost comes they attack the wheat-stacks, pull out the grain and straw, and allow the damp to enter. They also grub up potatoes and grain after it has been sown, and do much damage in this way. Mr. Gurney is also very severe on the Wood-Pigeons which have increased so enormously in every part of England of late years. They destroy the kale and also devour the leaves of the swedes and mangolds.

There have been few outstanding events of ornithological importance to be noted in Norfolk during 1916. An adult Sabine's Gull was noticed in April on Breydon water by Mr. A. H. Patterson, and a White Stork frequented Burgh Castle marshes in May, which apparently ultimately met with the usual fate of conspicuous and rare birds. A few Spoonbills were seen at Breydon in May, June, and July, and the Cormorant was again found breeding, this time at Hockwold Farm near Brandon by Mr. H. E. Upcher. There was a singular immigration of Pomatorhine Skuas in September at Blakeney. About seventy were seen passing overhead by Mr. E. Ram and moving inland in a south-easterly direction. Nothing of the sort appears to have been noticed either in Lincolnshire or Suffolk, or indeed elsewhere in Norfolk.

Gurney on the Rough-legged Buzzard.

[Immigration of Rough-legged Buzzards in 1915–16. By J. H. Gurney, F.Z.S. Trans. Norfolk and Norwich Nat. Soc. x. 1917, pp. 168–170.]

During the winter of 1915–16 there was a large influx of Rough-legged Buzzards (*Buteo lagopus*) into the eastern counties. Mr. Gurney reckons that at least forty visited Norfolk and half that number Suffolk and Lincolnshire. As usual, their food proved to be chiefly rabbits, but they also kill numbers of rats, so that they should be regarded as beneficial rather than harmful. Mr. Gurney remarks that the iris of the adult bird is not invariably, as has been asserted, bright yellow. The last irruption of Rough-legs in the eastern counties was in 1880.

Hartert's recent short papers.

[One of the rarest birds. By Ernst Hartert, Ph.D. Nov. Zool. xxiii. 1916, pp. 335–336, pl. i.

Notes on the Little Bustard. Id. ibid. pp. 337–339, pl. ii.

On the name of the "Auklets." Id. ibid. pp. 339–340.

The distribution of *Columba gymnophthalma.* By Ernst Hartert, Ph.D. Nov. Zool. xxiii. 1916, p. 341.

The name of the central European Cormorant. Id. ibid. p. 318.]

The rare bird with which Dr. Hartert's first note deals is *Callæops periophthalmica*, a Muscicapine bird obtained a good many years ago by the late John Whitehead in Luzon. The single extant specimen was not collected by Mr. Whitehead himself, but purchased by him from an Indian in Manilla, and is now in the Tring Museum.

It was described as the type of a new genus by Mr. Ogilvie-Grant, who believed its nearest ally to be *Arses*, an Australian and Papuan genus.

Dr. Hartert considers that it is very close to another Philippine genus, *Xeocephus* or *Zeocephus* Bp., from which it only differs in having a smaller bill and a larger crest. A coloured plate enables us to obtain a good idea of the peculiarities of this unique species.

Dr. Hartert has made an interesting discovery in regard to the structure of the wing of the Little Bustard, which seems never to have been previously mentioned. In the male only, the fourth primary is much shorter than the third or fifth, and both the outer and inner webs are curiously narrowed about the middle of their length. Dr. Hartert suggests that the gaps which would be found in the outspread wing by the narrowing of the fourth primary may possibly have something to do with the piping note often noticed with every beat of the wings of this bird during flight. The moult of the Little Bustard differs from that of the other Bustards, except *Sypheotis aurita*, the Indian Florican. The male has a striking seasonal change. The winter plumage, which closely resembles that of the female, is assumed with the total moult after the breeding-season. In the spring a second partial moult occurs (not affecting the wings and tail), and in this way the lavender-grey, black-and-white colouring of the nuptial dress is assumed. Finally, Dr. Hartert proposes to recognise two races of the Little Bustard—a western, *Otis tetrax tetrax*, breeding in North Africa, Spain and parts of France, and an eastern, *Otis tetrax orientalis* (here described—type from

Sarepta in southern Russia), found throughout western Siberia, southern Russia, the Balkan Peninsula, and the valley of the Danube to Austria.

In the third note Dr. Hartert points out that, although the authors of the A. O. U. Check-list have acted correctly in using the generic name *Aethia* instead of *Simorhynchus* for the Auklets, their reasons for so doing were not justified. The name *Aethia* is to be found in a well-known, though somewhat scarce work, published by Merrem in 1788 under the title "Versuch eines Grundnisses zur Allgemeinen Geschichte und natürlichen Eintheilung der Vögel," and the quotation for the generic name should be: *Aethia* Merrem, Vers. Grundr. Allg. Gesch. u. nat. Eintheil. Vög. i. –Tentamen Syst. Nat. Av. pp. 7, 13, 20 (1788: monotype *A. cristatella* Pall.).

Columba gymnophthalma, the name and distribution of which were discussed in a previous communication, is now found to occur along the arid northern coast of Venezuela and Colombia as well as in the adjacent islands Curaçao and Aruba; and, finally, the name of the central European Cormorant, previously discussed on pp. 293–5 of the same volume (*vide supra*, p. 101), must be *Phalacrocorax subcormoranus* Brehm (Ornis, i. 1824, p. 42: Holland).

Mathews on the Birds of Australia.

[The Birds of Australia. By Gregory M. Mathews. Vol. vi. pt. 3, pp. 217–296, pls. 291–299. London (Witherby), April 1917. 4to.]

The author's arrangement of the Psittaciformes, or Parrot alliance, has already been discussed in our last notice (*vide supra*, p. 253); but it should be noted that constant reference is made in this further instalment to the divisions that he has adopted, and to the fact that he finds osteological characters here comparatively unimportant.

Part iii. starts with the conclusion of the genus *Licmetis*, which is admitted to be of very doubtful validity; in fact, *Ducorpsius sanguineus sanguineus* and *D. s. distinctus* might be, or even have been, confounded with *Licmetis tenuirostris derbyi* and *L. t. pastinator* respectively.

Eolophus Bp. is accepted for the "Galah," which is without doubt generically separable by its wing-formation and coloration, and four subspecies (exclusive of the type) are allowed under *E. roseicapillus*, *E. r. lowei* being new. Our attention is also drawn to the fact that the name *roseicapillus* of Vieillot (who subsequently altered it to *rosea*) was founded on the same specimen as *eos* of Kuhl.

Mr. Mathews's new family Leptolophidæ contains the "Cockatoo-Parrot," here given as *Leptolophus hollandicus* Kerr, since *novæ-hollandiæ* is preoccupied. This bird is not a Cockatoo, and it may be necessary to remove it further from that group. All subspecies are cancelled, as they are not constant.

With reference to the author's family Loriidæ, it will be remembered that he prefers *Lorius* Bodd. to *Eclectus*, and that the two fine Parrots recorded ('Emu,' xiii. p. 105) as new to Australia proved to be *Lorius pectoralis* (*macgillivrayi*) and *Geoffroyus geoffroyi*. The latter was at first thought to be a new species, and called *Pseudopsittacus maclennani* *.

In the Polytelitidæ *Polytelis swainsonii* is determined to be the correct appellation for *P. barrabandii* auct., which name Kuhl had used previously, and the synonymy shews that Vigors later entitled the female *rosaceus*. The subspecies *P. s. whitei* is dropped. Again, *P. anthopeplus* is shown to be merely the female of *P. melanura*, and the first of these two names to hold good. Under *Northipsitta* (= *Spathopterus* North) all subspecies of *alexandræ* are now cancelled. *Aprosmictus* is once more preferred to *Ptistes*, and the subspecies of *A. erythropterus* are maintained, namely, *coccineopterus*, *parryensis*, *yorki*, and *melvillensis*, though this is a case of "fine splitting." The forms of *Alisterus scapularis*, thus correctly named, are fully discussed, while a new genus *Layardiella* is proposed for the group typified by *Psittacus tabuensis* Gm. (= *hysginus* Forst.). *Pyrrhulopsis*

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* Notes are here given on the dates of publication of the sheets of Bonaparte's Consp. Gen. Av., and we are told that *Rhodocephalus* may yet oust *Geoffroyus*.

Rchb. is entirely rejected and *Prosopeia* revived for the species *personata*. The subspecies *minor* and *neglectus* of *A. scapularis* are upheld.

North on the Birds of North-West New South Wales.

[The Birds of Coolabah and Brewarrina, north-western New South Wales. By Alfred J. North, C.M.B.O.U. Records Australian Mus. xi. pt. 6, 1916, pp. 121–162, 5 pls.]

Mr. North, of the Australian Museum at Sydney, spent his annual vacation in 1915 at Coolabah and Brewarrina in the dry interior of New South Wales. The first-named place is about 430, the second-named 518 miles from Sydney in a north-westerly direction. At Coolabah the country was suffering from a drought, and birds were not particularly abundant; but at Brewarrina, which is situated on the upper waters of the Darling River, things were better and more satisfactory results were obtained. A list of some sixty species noticed and procured is given with a number of interesting field-notes. We observe that Mr. North pointedly eschews the use of trinomials and that his nomenclature follows in most cases the 'Catalogue of Birds in the British Museum.' Several pages of the introduction are devoted to a description and discussion of the curious aboriginal fish-traps made of lines of stones enclosing a number of pools in the Darling River, into which the fishes are driven by the natives and so secured. Most of the photographs are also devoted to illustrating this very interesting native method of securing a supply of fish.

Palmer's Biographical Index.

[Biographical Index to 'The Auk,' 1876–1914. Prepared by T. S. Palmer, with the assistance of the Index Committee, 1915: extr. from the 'Ten Year Index of the Auk,' pp. vi–xxv.]

This is a most useful index to the names of all persons of whom biographical notices have been published in the 'Auk' and its predecessor, the 'Bulletin of the Nuttall Ornithological Club.' It also includes the names of all deceased members of the American Ornithologists' Union up to the end of 1914. The names are 275 in number, and under each are given the full Christian names, a reference to a memoir or notice either in the pages of the 'Auk' or elsewhere, place and date of birth and death, and age at death. The amount of research and correspondence required to prepare such a list as this is incredible, and we must congratulate Mr. Palmer on having carried through a most useful and valuable piece of work.

Petronievics and Woodward on Archæopteryx.

[On the Pectoral and Pelvic Arches of the British Museum specimen of *Archæopteryx*. By Branislav Petronievics and Arthur Smith Woodward. Proc. Zool. Soc. 1917, pp. 1–6, pl. i.]

Some further development of the slab which contains the remains of the British Museum example of *Archæopteryx* has been recently undertaken, and some of the preliminary results are given by the authors of this paper. The coracoid has been uncovered and is found to meet with the scapula at a wide angle and to be fused with it—a condition of things which resembles that in certain Mesozoic reptiles, rather than in any recent birds. The pelvis has also been freed from the matrix in which it lies, so that the relations and shape of the bones can be seen. The pubis meets its fellow of the other side and forms a symphysis, and this only occurs among existing birds in the Ratitæ; but in most respects, as with the pectoral, the pelvic arch is very much more reptilian than avian. Mr. Petronievics believes that the difference between the British and Berlin Museum specimens is sufficiently important to necessitate the placing of the latter form in a separate genus, for which he proposes the new name *Archæornis*.

Storer on the care of "separates."

[The care of pamphlet collections. By Tracy I. Storer. Science, New York, xliv. 1916, pp. 735–739.]

Nearly all working zoologists are worried by the problem of how to preserve and arrange the "separates" which accumulate so rapidly, and which are so valuable if easily accessible and so useless if not cared for. Some people bind them into volumes, some people arrange them on a book-shelf, and some file them in a vertical filing-cabinet. In the present paper Mr. Storer recommends a particular form of pamphlet-case, open only at the back, which he has found the most practical, and he further gives a number of hints for indexing and arranging which, if carried out, will be found to render one's collection of friends' and correspondents' papers both accessible and useful.

Taverner on the Faunas of Canada.

[Faunas of Canada. By P. A. Taverner. Department of Mines, Ottawa: in 'The Canada Year Book' for 1915, pp. 1-8. Ottawa, 1916. 8vo.]

In this short pamphlet Mr. Taverner reviews the history and general relations of North American life to that of the world in general, and then proceeds to delimit the faunal zones of the Canadian Dominion, adapting for his purpose the well-known classification of Dr. C. Hart Merriam. The Zones represented in Canada are :—(1) The Arctic—treeless and shrubless, with Snow-Buntings, Longspurs, and Ptarmigan as characteristic birds; (2) The Hudsonian, the region of small, stunted, mostly coniferous trees, with the Rough-legged Hawk, Northern Shrike, and Pine Grosbeak as characteristic birds ; (3) The Canadian zone, with heavy coniferous forest and occupying the greater part of the Dominion, with the Olive-backed Thrush, Three-toed Woodpecker, Canadian Jay, and numerous (American) Warblers ; (4) The Transition zone, consisting of prairies and hardwood forests, with Wild Turkey, Bob-white, and Wood-Thrush as characteristic birds; and finally (5) The Upper Austral, a narrow belt of country along the northern shores of Lakes Erie and Ontario, where the Mocking-bird, Carolina Wren, and Orchard Oriole are to be found.

Witherby on results of ringing partial migrants.

[On some results of ringing Song-Thrushes, Blackbirds, Lapwings, and Woodcock. By H. F. Witherby. British Birds, x. 1917, pp. 215-220.]

In order to arrive at some conclusions in regard to the so-called partial migrants among British birds, Mr. Witherby has collected and summarized all the data he has received as to the movements of the four species mentioned in his title. He has only taken into consideration those cases where a bird has been ringed as a nestling and recovered in winter.

He finds that in the case of the British Song-Thrush about 50 per cent. of recoveries were close to the breeding-place and about 50 per cent. were away. From the latter returns the winter movement appears to be a south-western one, no less than six birds which were bred in south-west Scotland and Lancashire having been recorded in Ireland. Two also were taken in France and one in Spain, proving that some individuals at least of our home-bred Thrushes migrate southwards in winter.

The Blackbird appears to be more of a stay-at-home; over 70 per cent. of those ringed have been recovered close by their nesting-places, while of the 28 per cent. recovered away, only one, taken in France, is from outside the British Islands.

In the case of Lapwings there are more records, and those of Scottish and English nestlings have been separated. It is found that while over 80 per cent. of the former are recovered away from the nesting-place, the percentage is only 57 per cent. in the case of the latter. The favourite wintering ground of the Scottish birds is undoubtedly Ireland, while that of the English birds is more widespread, extending to Portugal and Morocco.

For the Woodcock the results are much the same; the recoveries away from the nesting-place are about 54 per cent., and the favourite wintering ground is Ireland.

The interest of Mr. Witherby's results is very considerable, but it must be borne in mind that the actual number of recoveries up to now is not very large and hardly warrant absolute deductions: at the same time it is most interesting to know the tendency of the data as far as they go.

British Birds.

[British Birds: an illustrated Magazine devoted to the Birds on the British List. Vol. x., June 1916–May 1917.]

From January last the old-established magazine, the 'Zoologist,' has been incorporated with 'British Birds.' The former was established by Edward Newman in 1843 and is therefore one of the oldest of zoological magazines; it was edited till 1876 by Mr. Newman, and subsequently by Messrs. J. E. Harting, W. L. Distant, and Frank Finn.

The longest article in the present volume of 'British Birds' is one by Mr. J. H. Owen on "The Nesting-habits of the Sparrow-Hawk." The observations and photographs were all made near Felsted in Essex, where Mr. Owen is an assistant master at the well-known school, and he has been fortunate enough to secure the assistance of some of his pupils in the laborious task of watching the several nests during a period of nine weeks. There are a series of five articles on "The Effects of Rain," "The Hen at the Nest," "The Cock," "The Nestling," "General Habits"—all are abundantly illustrated by photographs and together form the most complete life-history of the Sparrow-Hawk yet published.

Several parts of Mr. Witherby's "Moults of British Passeres" and results of the marking scheme have already been noticed in our pages. Miss Haviland contributes a short notice of the breeding-habits of Temminck's Stint (*Erolia* [or *Tringa*] *temmincki*) on the Lower Yenesei, and sends a photograph taken by herself on her recent trip to that country. Mr. Heatley Noble writes on the supposed breeding of *Branta leucopsis* in Iceland. When visiting that island in the summer of 1913, he saw an undoubted nest with eggs in the possession of a mysterious "general dealer." According to an account subsequently sent to Mr. Noble by the general dealer, the eggs were taken by himself in a remote district in Iceland. No positive evidence of the breeding of the Barnacle Goose in Iceland has yet been recorded.

Three birds new to the British list are recorded in the April number. These are:—*Melanocorypha calandra*, the Calandra Lark, which appears in the Appendix of the B. O. U. List among doubtful and unsatisfactory records; *Acrocephalus arundinaceus orientalis*, the eastern Great Reed-Warbler; and *Charadrius* (or *Ægialites*) *semipalmatus*, the Semi-palmated Ringed Plover of America. The first two of these were obtained close to St. Leonard's-on-Sea and are recorded by Mr. J. B. Nichols; the third was shot at Rye, also in Sussex, and is recorded by Mr. T. Parkin.

The volume in review, which fully sustains the reputation of its predecessors, contains many other valuable articles and notes, including contributions from Mr. H. G. Alexander on the birds observed by him at Dungeness, and from Mr. G. B. Dunlop on instances of occasional polygamy among Rooks.

Cassinia.

[Cassinia. Proceedings of the Delaware Valley Ornithological Club of Philadelphia, No. xx. for 1916, 1917.]

The opening article of 'Cassinia' deals with the history of William P. Turnbull, a Scotsman, who was born in 1830 at Fala in East Lothian and emigrated to America in 1850. He settled at Philadelphia, and died there in 1871. But little is known about him outside his work as an ornithologist. He published two works, one on the birds of East Lothian, and another in 1869 on the birds of east Pennsylvania and New Jersey, both interesting and rather scarce works. He was also an enthusiastic admirer of Alexander Wilson. A portrait of Turnbull prefaces the article.

Other contributions to this always scholarly annual are of local interest. Mr. H. W. Fowler writes on some rare birds recently observed on the Delaware in Upper Philadelphia, and Mr. T. D. Burleigh on bird-life about Samar in the foot-hills of the Appalachians, where the Pennsylvania State College had a forestry camp in the summer of 1916. A nest of the Least Bittern, which is almost invariably placed in dense reed-beds, was found near Camden, New Jersey, by Mr. J. K. Potter to be built in a "button-bush" growing in an old mud-hole, and is well illustrated in three photographs.

The usual report on the spring migration in the Delaware valley, compiled by Mr. Witmer Stone from the schedules filled in by members of the Club, is always a valuable feature of this magazine.

Journal of the South African Ornithologists' Union.

[The Journal of the South African Ornithologists' Union. Vol. xi. no. 2. December 1916.]

This, we notice with great regret, will be the last number of the Journal to appear. It has been found impossible in so thinly populated a country to keep up sufficient interest in one department of Zoological Science alone to maintain a separate journal, and it has therefore been decided to found a new Society to be called the South African Biological and Natural History Society, which will absorb the South African Ornithologists' Union and the Transvaal Biological Society. It is the intention of the new Society to issue a quarterly Journal of Natural History dealing with all zoological subjects, and it is hoped that the first number will be issued this year.

The first part of the present series of volumes was issued in 1905, and the eleven completed volumes contain numerous valuable observations and descriptions of the utmost importance to all students of African Ornithology.

The present number is chiefly taken up with a list of the birds of Humansdorp, a district in the eastern half of the Cape Province, by Mr. B. A. Masterson. This is followed by a Report on the summer migration of 1915–16 as observed in the eastern districts of the Cape Province by the Rev. R. Godfrey. Mr. Swynnerton pleads for some observations bearing on the coloration of birds' eggs, in continuation of his researches and experiments published in 'The Ibis' last year; and the number concludes with some notices and circulars explaining the reasons for the formation of the new Society and the winding-up of the South African Ornithologists' Union.

South Australian Ornithologist.

[The South Australian Ornithologist. A Magazine of Ornithology, ii. pts. 5–8. Jan.–Oct. 1916.]

The four numbers of this magazine, published during last year, contain many interesting articles and show a good deal of improvement on those of the previous years. Mr. G. M. Mathews continues his notes on the birds of north and north-west Australia, commenced in 1915, but the name of the first species listed seems to have been lost; anyhow, it does not appear, which seems to indicate somewhat defective proof-reading. Short notes on the soft parts and the habits of some of the birds accompany this list, but no new forms are described. Mr. A. M. Morgan writes on the migrations of South Australian Swallows, and states that *Hirundo neoxena* is only partially migratory near Adelaide and can be always found during the winter, though less abundantly than during the summer. Of the other species *Hylochelidon nigricans caleyi* does not appear to leave the plains of South Australia at all, while *Lagenoplastes ariel* is a purely migratory bird arriving in September and leaving before the first of April.

Another paper of considerable interest is one by Mr. T. Bellchambers, giving an account illustrated with sketches of the habits of the Mallee Fowl (*Lipoa ocellata rosinæ*). As is well known, this is one of the mound-builders, where the eggs are laid and are hatched partly by hot beds at the base of the mound and partly by the direct action of the sun on the sand which covers them. Many interesting details are given by Mr. Bellchambers, who has not only had frequent opportunities of studying the birds in a wild state, but has also succeeded in inducing the birds to breed in captivity. He has examined thirty-one mounds since 1907.

A second paper by Mr. A. M. Morgan deals with the exploration of some of the islands in St. Vincent and Spencer Gulfs, especially Althorpe and Wedge Islands, where many species of sea- and water-birds breed—such as the Mutton-bird *Neonectris tenuirostris brevicaudus, Hydroprogne t. strenua, Sternula nereis,* and others. The stomach-contents of many of the birds were examined and the temperatures taken soon after death.

Finally, Capt. S. A. White describes a new Parrot, *Barnardius barnardi lindoi*, from Flinders Range, Central Australia, and a new Scrub-Wren, *Sericornis longirostris wyldei,* from the Coorong, the position of which is not stated nor can we find it in Stieler's Atlas. It would be well if authors were a little more careful on these matters.

List of other Ornithological Publications received.

Dabbene, Roberto. Especies y Subespecies aparentemente nuevas de *Geositta* y *Cinclodes* de la Republica Argentina y del sur de Chile. [Physis (Revista de la Sociedad Argentina de Ciencias Naturales), T. iii. pp. 52–59. Buenos Aires, 1917.]

Fuertes, Louis Agissiz. Impressions of the Voices of Tropical Birds. Smithsonian Report for 1915, pp. 299–323. Washington, 1916.

Swenk, Myron H. The Eskimo Curlew and its Disappearance. Smithsonian Report for 1915, pp. 325-340. Washington, 1916.

The Auk. (Vol. xxxiv. No. 2. Cambridge, Mass., 1917.)

Avicultural Magazine. (Third Series, Vol. viii. Nos. 6–8. London, 1917.)

Bird-Lore. (Vol. xix. No. 2. New York, 1917.)

Bird Notes. (New Series, Vol. viii. Nos. 2–5. Ashbourne, 1917.)

British Birds. (Vol. xi. No. 1. London, 1917.)

California Fish and Game. (Vol. iii. No. 2. San Francisco, 1917.)

The Condor. (Vol. xix. No. 2. Hollywood, Cal., 1917.)

The Irish Naturalist. (Vol. xxvi. Nos. 4–6. Dublin, 1917.)

Journal of the Bombay Natural History Society. (Vol. xxv. No. 1. Bombay, 1917.)

Journal of the Natural History Society of Siam. (Vol. ii. No. 2. Bangkok, 1916.)

Messager Ornithologique. (1917, No. 1. Moscow, 1917.)

Revue Française d'Ornithologie. (Nos. 95-97. Orléans, 1917.)

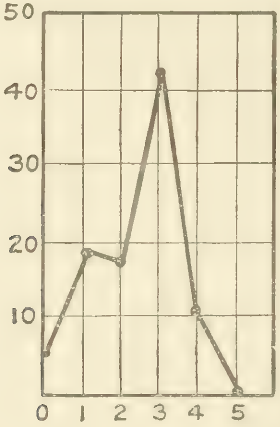
The Scottish Naturalist. (Nos. 64-66. Edinburgh, 1917.)

The South Australian Ornithologist. (Vol. iii. pts. 1, 2. Adelaide, 1917.)

XXIV.—*Letters, Extracts, and Notes.*

Cuckoos' Eggs.

Sir,—Will you allow me to make one or two remarks on Major Meiklejohn's very interesting paper on the "Breeding-habits of the Cuckoo" in 'The Ibis.' In 'Wild Life' (vol. i. no. 5, May 1913) some data were published by E. Pettit. I have plotted a curve of some of Mr. Pettit's records (a liberty I hope he will pardon). The figures relate to the occurrence of Cuckoos in Reed-Warblers' nests, and the abscissæ refer to the number of foster eggs. The high mode may probably be accounted for, as the normal clutch of a Reed-Warbler's nest is four, by the Cuckoo ejecting one of the foster eggs. It is more difficult to explain the "shelf" between 1 and 2, as if the matter were due simply to chance, and the Cuckoo's custom was to throw out a foster egg when she deposited her own, the curve ought to rise gradually to the mode. The rise between 0 and 1 looks as if the Cuckoo



The occurrence of Cuckoos' eggs in nests of the Reed-Warbler recorded by E. Pettit, in 'Wild Life,' May 1913.
The abscissæ = number of eggs in foster clutch. In each case there was only one Cuckoo's egg in nest.

does not eject the foster egg when she is dealing with a nest that already contains one only. Unfortunately we have no knowledge of the state of incubation in any of these cases, and so cannot tell which are unfinished clutches and which are those despoiled by the laying Cuckoo.

Major Meiklejohn does not refer to Mr. O. Latter's tables published a few years ago in 'Biometrika.' I have not access to these at present, but I believe it was shown there that the relation in size between parasite and host-egg though small is constant, whereas relation in colour is not. Major Meiklejohn admits that the colour-resemblance has been greatly overrated; but on page 207 he postulates that there is considerable selection by the foster-parents. Yet in this country, where the Hedge-Sparrow is so commonly parasitised, the Cuckoo never lays a blue egg. We cannot explain this by calling it the Cuckoo's "instinct," because it is the instinct that we are out to explain. In Germany and Finland, where the blue type of egg is produced, it is laid in the nest of the Redstart. But if these Redstarts breed in closed situations as the British Redstarts do, it must very often be impossible for either bird to distinguish the colour of the eggs. As to the view on page 207 that it is "unlikely" that the male may influence the coloration, surely in our present knowledge it is unsafe to say which traits go by one sex or the other. The egg pigments are products of a certain kind of metabolism in the parent, and as we know that the father may profoundly influence the metabolism of his female offspring in other ways, I cannot agree that it is "unlikely" that he does so in this. If he does have such an influence, there would be a constant tendency for the different "gentes" of Cuckoos to break up owing to intercrossing. What are required are figures from a district where only one type of egg is found, showing what is the commonest foster-parent and what percentage of eggs are laid in other nests. We also badly need records of nests *that are deserted* owing to parasitism by a Cuckoo. The chief criticism that one could make of Major Meiklejohn's important suggestion that the egg may be carried to the nest some days after laying, is that it postulates considerable memory for the Cuckoo; but, after all, the possession of such a faculty would not be more remarkable than the fact that two Cuckoo's eggs so rarely occur in the same nest. for if the bird can remember not to lay twice in the same place, why should she not remember where to put her egg the day after laying?

Regarding Major Meiklejohn's remarks on the subsequent interest of the Cuckoo in her egg, one might perhaps make the criticisms that in the first case the Cuckoo inspecting the nest may not have been the same bird. In that of the White Wagtail there is no evidence that the young Cuckoo, failing to eject the young, did not smother them, and that they were then, as sometimes happened, removed by their own parents. Finally, may not the last instance be explained by supposing that the presence of an egg, even though not her own, excited the Hedge-Sparrow to incubate? Normally the stimulus to incubation seems to be internal—from the genital organs probably; but as I have known a Greenfinch, and also a Twite, begin to sit on their first egg and lay others subsequently, I believe that abnormally the stimulus may be external, and be due possibly to the sensation of eggs under the breast.

Yours faithfully,
Maud D. Haviland,
H.M.B.O.U.

London Unit S.W.H.
Odessa.
May 15, 1917.

Sir,—In Major Meiklejohn's valuable article on the "Breeding-habits of the Cuckoo" he quotes Dr. Rey (p. 193) as asserting that eggs laid in the nest of *Accentor modularis* apparently never resemble those of the foster-parent. Again (p. 202) he states on his own authority:—"In Britain the Hedge-Sparrow is frequently selected as foster-parent, and the eggs are, as a rule, successfully hatched. Yet Cuckoos' eggs found in the nests of this species are never blue."

When selecting varieties of eggs for illustration in

'British Birds with their Nests and Eggs,' Mr. Frohawk and I set aside from our own and other collections no less than twenty-one eggs of *Cuculus canorus*: of these the only blue egg was one from Mr. A. B. Farn's collection, expressly stated to have been found in the nest of the Hedge-Sparrow. Mr. William Borrer, of Cowfold, Sussex (with whom I was in correspondence when writing that portion of the work), unless I am very much mistaken, also obtained the blue variety from an Accentor's nest: unfortunately I did not retain the letters which he wrote to me on the subject.

An egg which I found in June 1880 in a Robin's nest was an admirable copy of the eggs of the foster-parent, excepting in the more sharply-defined spotting, a few indistinct lilacine shell-spots and the black dots characteristic of many Cuckoos' eggs. Now, considering how very abundant and easy to discover Robins' nests are, I see no reason why reddish Cuckoos' eggs should be rare.

I quite agree with Major Meiklejohn in rejecting the view that the colouring of Cuckoos' eggs is affected by the food supplied by their foster-parents, and not only for the excellent reason which he gives, but also because so many of the foster-parents supply practically the same food. Of course, we know that Robins, Accentors, Larks, and Pipits eat a good deal of seed, but I do not believe they ever give it to their nestlings, and even the more insectivorous Finches probably feed their young at first only upon half-digested and regurgitated insects and later upon the same food as captured.

That characteristically coloured Cuckoos' eggs are not always found in appropriate nests will be evident to anyone who examines plate viii. of the eggs in vol. ii. of 'British Birds.' Fig. 271 would have been less conspicuous in a Rock-Pipit's nest than a Robin's, whereas fig. 272 is palpably intended for the nest of a Chaffinch and not that of a Rock-Pipit: 299 also is far more characteristic of a Chaffinch than a Hedge-Accentor; but I do not doubt that if suitable nests had been available, none of these eggs would have been misplaced, for there is strong evidence that, when convenient, a Cuckoo prefers always to lay her entire clutch in nests of one selected species.

There is such an extraordinary range of variation in eggs of the same species that it is not surprising that the Cuckoo is no exception to the rule; the only puzzling thing, is that some Cuckoos' eggs are such perfect, slightly enlarged, replicas of the eggs of the other species that one can hardly suppose the resemblance to be objectless; and yet many birds seem to have so little appreciation of the character of their own eggs that they readily accept marbles or hazelnuts as substitutes, and I have even known a Blackbird to accept a rather angular flint and attempt to hatch it out.

Yours truly,
ARTHUR G. BUTLER.

Beckenham, Kent.
13 April, 1917.

SIR,—In the list of species breeding in England in whose nests the eggs of the Cuckoo have been found (p. 222 *ante*), Major Meiklejohn does not mention the Reed-Bunting. The late John Cottney took several clutches of Reed-Bunting's eggs containing an egg of the Cuckoo in this neighbourhood, one of which is in my collection, and I believe there are one or two others in his collection now in the Belfast Municipal Museum.

Yours truly,
NEVIN H. FOSTER.

Hillsborough,
Co. Down.
16 April, 1917.

SIR,—I read with interest "Some Reflections on the Breeding-habits of the Cuckoo" by Major R. F. Meiklejohn, D.S.O., M.B.O.U., in your April number. There are, however, certain points in his paper to which I should like to call attention, and on which I should be glad of further information.

I wish to deal with *facts* as apart from *theories*. Personally I am a great deal more interested in the former than the latter.

Now, under a sub-heading — "The authentic facts known"—in section (*c*) I notice the following statement:— The foster-parents "continue to feed it (the Cuckoo) for some time after it has left the nest, and, owing to its size, often have to do so by perching on its *head*." I have had intimate dealings with more than one Cuckoo at this stage in its existence, but I have never yet seen either foster-parent perch on the baby's *head*. I have seen them perch on the young Cuckoo's back, and indeed on its breast. In this latter case the head and neck of the Cuckoo were thrown right back, thus providing a resting-place for the foster-parent's feet. This position of alighting I have only once observed, and I was lucky in obtaining a photograph of it.

Now, does the foster-parent ever perch on the *head* of the Cuckoo? According to Major Meiklejohn it is an authentic fact that it does. What I am not clear about is whether by *head* he refers to the position somewhere *on* and above the Cuckoo. If the baby had its foster-mother perched on its head, it seems to me that the act of feeding would be a most difficult one, and perhaps impossible. I merely wish for information on the above point, which is of some interest.

May I further be allowed to call attention to a later statement in the same article p. 219?:—"Of these latter, the first four birds (Wren, Willow-Warbler, Wood-Warbler, Chiffchaff) invariably refuse to hatch the Cuckoo's egg." This may be true of the last three species named above, but is certainly untrue of the Wren. There is a well-known photograph by the late Colonel Moore, which shows a baby Cuckoo being fed in the nest of a Wren. This photograph has been reproduced in 'Wild Life,' and may be seen on p. 297, vol. i. no. 5, May 1913.

It seems rather dangerous to state as a "*fact*" that certain species "*invariably*" refuse to hatch the Cuckoo's egg. Such a number of things take place in nature behind our backs that sweeping statements are often upset by our friends. I should like very much to try the effect of placing Cuckoos' eggs in a number of Willow-Warblers' nests and see what the effect would be. Would the eggs in each case be ejected or fail to hatch? I cannot help doubting it! Perhaps some day one might try the experiment. I shall certainly tell you all about it if I do!

With many apologies for taking up so much of your space,

Yours truly,
A. M. C. Nicholl.

Royal Naval College,
Osborne, Isle of Wight.
20 May, 1917.

Lanner Falcon in North Lancashire.

Sir,—I can find no record in any modern work of the Lanner Falcon (*Falco feldeggi*) which I recorded in 'The Field' of January 30, 1904, as having been picked up dead on Carnforth Marsh, north Lancashire, on April 26, 1902. I think it worthy of mention at least in the appendix of the last published B. O. U. list.

There was no doubt about the identification, for I showed it to Dr. W. Eagle Clarke, who pronounced it to be a Lanner. The bird, a female, was seen in the district for some weeks, during which time several men tried to shoot it, and eventually it was picked up dead by the present owner, and almost warm, having a recent shot-wound beneath the wing. During its residence on the marsh, it appeared to live chiefly on small waders. I advertised the find pretty freely among Falconers, but did not receive a single reply that one was missing. It is the only record for the British Isles, and I venture to think as worthy of publication in the appendix of the last B. O. U. list as many of those mentioned there, if not more so than some of them.

Yours truly,
H. W. Robinson.

Patchetts, Caton,
nr. Lancaster.
7 May, 1917.

Selous Memorial Committee.

With this Number is enclosed a Circular from the Committee formed to establish a National Memorial to the late Captain Selous, D.S.O., explaining the form which it is proposed the memorial will take and asking for subscriptions.

All Members of the Union who wish to contribute to so worthy an object are asked to send their subscriptions to C. E. Fagan, Esq., Honorary Treasurer, Natural History Museum, Cromwell Road, London, S.W. 7.

The Berlepsch Collection of Birds.

We learn from a notice in the 'Ornithologische Monatsberichte' of last year (p. 64) that this extremely valuable collection, chiefly of Neotropical birds, brought together by the late Hans Graf von Berlepsch, containing many types and varieties and including a wonderful series of Trochilidæ mounted and in skin, has been acquired by the Senckenberg Museum at Frankfort a. M. It contains over 55,000 skins and 300 of the Berlepsch types.

The Journal of the Natural History Society of Siam.

Messrs. Witherby & Co. have been appointed European Agents for this publication. The work is illustrated by plates and figures, and deals with all branches of the Natural History of that country.

List of M.B.O.U. serving with H.M. Forces.

The name of Mr. Thomas Carter, Pte. 9th Batt. Surrey Volunteer Regt., must be added to those already published.

Errata in the April Number of 'The Ibis.'

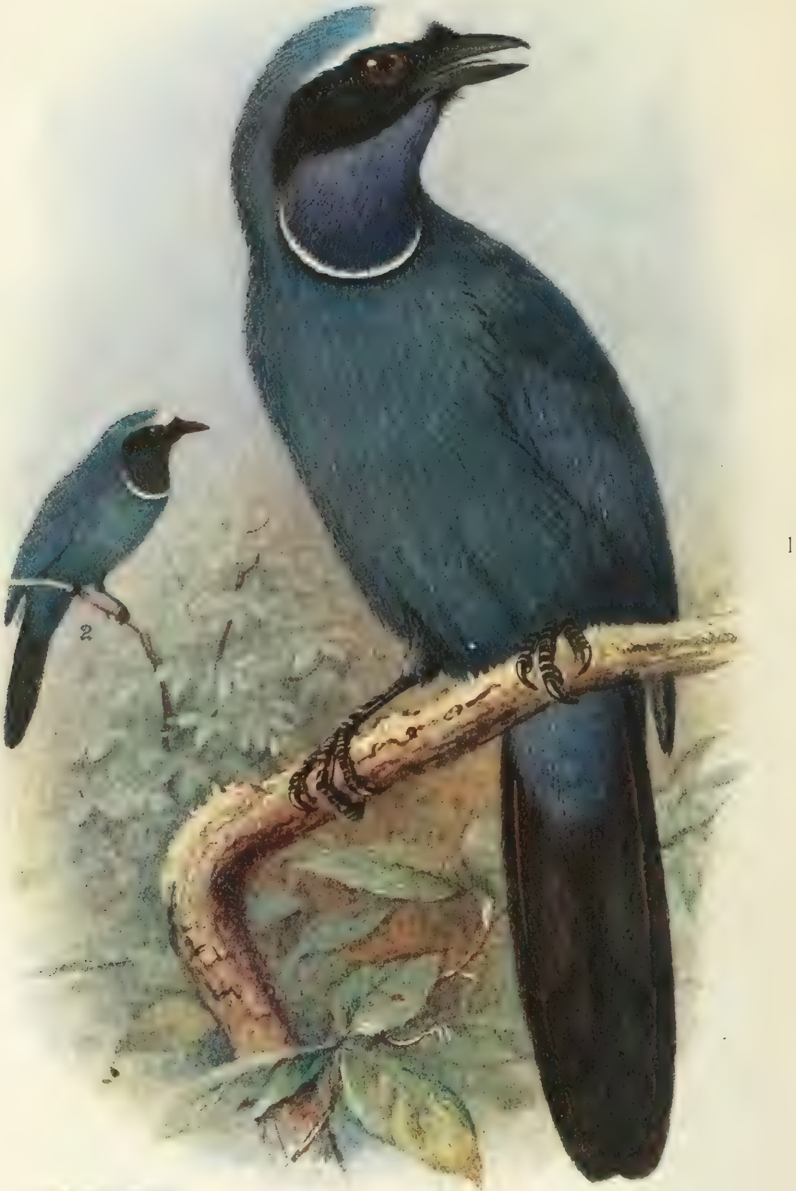
p. 158, lines 1 & 2,	for *carruca*	read *curruca.*
p. 162, line 22,	*for* Pl. V.	*read* Pl. IV.
p. 180, lines 29 & 30,	for *carbo*	read *carlo.*
p. 261, line 31,	*for* Cork	*read* Belfast.
p. 272, line 29,	*for* H. R. Jourdain	*read* F. C. R. Jourdain.

B.O.U. New Guinea Expedition.

The Official Records of the collections made by the B.O.U. Expedition to Dutch New Guinea have now been published and form two handsome quarto volumes, illustrated by 41 plates.

We would draw the attention of our readers to the advertisement of this work on p. 2 of the cover of the present number of 'The Ibis.'

Application should be made to Mr. Francis Edwards, Bookseller, 83 *a* High Street, Marylebone, W. The price is £10 net.



MENPES PRESS WATFORD

1. CYANOLYCA VIRIDICYANEA CUZCOENSIS.
2 CYANOLYCA V. VIRIDICYANEA.

THE IBIS.

TENTH SERIES.

Vol. V. No. 4. OCTOBER 1917.

XXV.—*On a new South American Jay of the Genus* Cyanolyca. By W. L. Sclater, M.B.O.U.

(Plate VIII.)

While rearranging and cataloguing the collection of Corvidæ in the Natural History Museum I came across this hitherto uncharacterized form of South American Jay, which I propose to name and describe as follows:—

Cyanolyca viridicyanea cuzcoensis, subsp. nov.
(Plate VIII. fig. 1.)

Resembling *C. v. viridicyanea*, but with the chin and throat a rich ultramarine blue instead of black, faintly washed with greenish indigo; general colour above and below bright blue with hardly any trace of the greenish shade characteristic of the typical form; as regards the white on the head, the black frontal band, the black on the sides of the face, and the narrow line of white and black separating the ultramarine blue or blackish indigo of the throat from the brighter azure blue of the rest of the underparts, it agrees with the typical form.

In dimensions the two forms are almost identical, the wing-measurements of four examples of *C. v. cuzcoensis* averaging 135 mm., of five *C. v. viridicyanea* averaging 139 mm.

The type is an example collected by Mr. H. Whitely, jur., at Huasampilla, at an elevation of about 10,000 feet, north-east of Cuzco, on the eastern slopes of the Andes, in July 1871, and was formerly in the collection of Dr. P. L. Sclater (B.M. reg. no. 86/9/15/399).

The measurements are as follows:—Wing 134, tail 150, tarsus 37, culmen 25 mm.

There are three other examples of the subspecies, all taken by Whitely at the same locality between October 1870 and March 1872, now in the Museum collection. None of the examples are sexed by the collector, but probably there is no marked difference in this respect. They were referred to *C. viridicyanea* by Messrs. P. L. Sclater and Salvin (P. Z. S. 1873, p. 185).

The type of *C. v. viridicyanea* was obtained by d'Orbigny, the French traveller, also on the eastern slopes of the Cordillera, but some 500 miles farther south, to the east of La Paz in Bolivia. It is figured by d'Orbigny (Voy. Am. Mérid., Ois. 1844, pl. 53. fig. 1), and is represented in the British Museum collection by examples obtained by the late Charles Buckley and P. O. Simons in the same district to the east of La Paz.

The Plate illustrates the two subspecies, the typical form being figured in the background.

XXVI.—*Notes on the Ornithology of Malta.*

By G. Despott, M.B.O.U.

[Concluded from p. 349.]

117. (118) Micropus melba melba (L.). The Alpine Swift.
Local name: *Rundun ta zakku bajda.*

Both Schembri and Wright say that this species is not as common as its congener the Common Swift, and that it arrives here in April and September, but does not remain long in these islands. According to my own observations I can say that the species is rare, though occasionally it has appeared in fairly good numbers; it occurs in April and September, but is more frequent during the former month.

148. (146) **Micropus apus apus** (L.). The Swift.

Local name: *Rundun.*

Occurs in considerable numbers during both seasons. It generally makes its appearance in April, and is to be met with until August. In September fresh arrivals are noticed, but, as Wright remarks, it disappears as autumn advances. I have seen, however, individuals even late in November, and in 1910 I observed two specimens in the middle of January. During the spring it seems to be confined to the southern parts of the islands, where it breeds in the inaccessible cliffs overhanging the sea on that side.

149. (147) **Micropus murinus murinus** (Brehm). The Pallid Swift.

Local name: *Rundun second.*

This species was reported for the first time amongst the birds of Malta by Wright, who, in the fifth appendix to his list of Maltese Birds, says that undoubted examples of this Swift were taken in Malta in May 1874, and he mentions a specimen procured in the market on the 18th of the month by Capt. Feilden, and another obtained by himself at the Salina on the 27th of the same month; he also says that on one occasion he killed several out of a large flock during August at Fort Manoel. I have met with the species three times, in May, June, and September; and though I consider it rare, I also think that it may have been overlooked. The local name was given to it by the late Prof. Tagliaferro, and it indicates its somewhat small size.

150. (149) **Caprimulgus europæus europæus** L. The Nightjar.

Local name: *Bukrajk.*

Occurs on migration during both seasons, when great numbers are slaughtered and brought into the market. During the spring the first arrivals are generally noticed at the end of February, and specimens are to be met with until the end of May. In the autumn they begin to arrive in September and continue to do so until the end of October, and sometimes even late in November the birds are still to be seen. I have seen specimens taken in December, but I consider such an occurrence as quite occasional and rare.

151. (151) **Caprimulgus ægyptius ægyptius** Licht. The Egyptian Nightjar.

Local name: *Bukrajk abjad.*

Giglioli reports three specimens taken in these islands. According to Count Arrigoni these were obtained in the spring of 1876, two of them being in the Valletta Museum and the other in the Museum at Florence. Besides these I know of several other specimens taken in Malta, but I never handled one in the flesh before the spring of 1916, when I obtained two in the Valletta Market; about one of these I published a note in the 'Zoologist' of the 15th May, 1916. Of the two specimens sent to me by Dr. G. Cachia Zammit in the spring of 1911, only the wings had been saved; the rest was consigned to the pot.

152. (150) **Caprimulgus ruficollis desertorum** Erl. The Algerian Red-necked Nightjar.

Local name: *Bukrajk ahmar.*

Wright records two specimens taken in the island; the first was shot at Imtahleb at the end of May 1860; the second on the 12th of May, 1865. Mackay mentions two specimens seen by him in Mr. Micallef's collection about twenty years ago; the way, however, Mackay puts his statement makes me doubt much whether the birds seen by him really belong to this species. I have never met with the species myself, and have, moreover, been assured that four specimens which were picked up in the Valletta Market in 1908 by Mr. Micallef were imported, together with other game, from the north-east of Africa. The local name is the one by which Mr. Micallef called his specimens.

153. (156) **Merops apiaster L.** The Bee-eater.

Local name : *Kird in-nahal.*

Occurs on passage during the spring and autumn ; it is, however, more common during the former season, and in the latter it is generally scarce. I have seen large flocks of these birds passing very high and apparently without alighting. Schembri states that, according to Dr. Pisani, Chief Medical Officer in Gozo, the Bee-eater has been known to nest at the "Ramla"—a sandy bay of that island. Wright repeats the statement. I think, however, that there is need of further evidence.

154. (157) **Merops persicus Pall.** The Blue-cheeked Bee-eater.

Local name : *Kird in-nahal rar.*

Schembri records the occurrence of two specimens in September 1840, and Wright, in the fifth appendix to his list of Maltese Birds, records another killed at the end of May 1871 at the Inquisitor's Palace by F. Camilleri. It is, of course, difficult to state with certainty whether these specimens belonged to the Persian race or the Sahara form, though very probably they belonged to the latter. The local name appears in Giglioli's 'Avifauna Italica,' where the date of the occurrence recorded by Wright is the 25th of May, 1861, and that for Schembri's is September 1846.

155. (158) **Upupa epops epops L.** The Hoopoe.

Local name : *Dakkuka.*

Occurs on passage during both seasons ; it is, however, much more abundant during the spring, when the first arrivals are noticed by the middle of February ; in the autumn it generally begins to be seen by the first or second week of August. Great numbers are taken, especially during the former season, and many are brought over into the market, where they are sold as an article of food. The local name, "*Dakkuka tal pinnac,*" is also given to the Hoopoe. The simple name "*Dakkuka*" is, however, in more common use.

156. (155) **Coracias garrulus garrulus** L. The Roller.

Local name: *Farrug.*

Like the Bee-eater this species occurs on migration during both seasons, and is also more common during the spring. From my own experience I should say that during the autumn it is rather scarce. Schembri states that it is said that in the spring of 1843 a pair of these birds nested in a ruined house in Zurrico. This, however, is evidently in need of confirmation; moreover, Schembri does not give the source of his statement. Besides the name given above, "*Karnanklic*" and "*Tajra Cahla*" are also used. "*Farrug*," however, is the more common.

157. (154) **Alcedo ispida ispida** L. The Kingfisher.

Local name: *Ghasfur ta San Martin.*

According to Schembri, this species makes its appearance here in August and September, disappearing entirely in November. He also says that this bird, though rarely, sometimes breeds with us. This last statement seems to have been copied by Wright, who records a specimen killed on the 11th of March, 1862. As regards the breeding of the species in Malta, further evidence is required. I can add that, besides the months mentioned by Schembri and Wright, I have met with it also in February, May, November, and December. It also seems that in some years it occurs in fairly good numbers, while in others it is very scarce.

158. (152) **Picus viridis viridis** L. The Green Woodpecker.

Local name: *Bulibbiet ahdar.*

In May 1903 a specimen was shot in the neighbourhood of Birzebbugia by Lorenzo Zammit, a lad from the locality. Unfortunately it was consigned to the pot. The head and wings, however, which were quite enough for the identification of the species, were nailed to a door. In our Natural History Museum there is a specimen which bears neither date nor locality, though it is said to have been taken in the island. The local name was suggested by the Hon. Dr. Magro.

159. (153) Iynx torquilla torquilla L. The Wryneck.

Local name: *Sultan is summien.*

Very common, occurring on migration during the spring and autumn. In the former season it is generally seen as early as the first or second week of February, and is to be met with till the middle or end of May. In the latter it arrives towards the beginning of September and lingers till the beginning of November, and sometimes even later. Great numbers of these birds are to be seen during the spring in the Valletta Market, where they are sold, together with others, for food. Besides the local name given, this bird is also known as "*Bulibbiet.*" This, however, appears to be seldom used at the present time.

160. (159) Cuculus canorus canorus L. The Cuckoo.

Local name: *Sultan il gamien.*

A pretty common visitor during the spring and autumn. It is more common, however, in the former season, when it commences to arrive towards April and is to be met with till the middle of the following month. In autumn it is generally seen by the middle of September, though I have met with individuals as early as the first week of August or the end of July. Besides the local name above given, which is undoubtedly the more common, the bird is also known by the name of *Dakkuka cahla* or *Cuccu.*

161. (160) Clamator glandarius (L.). The Great Spotted Cuckoo.

Local name: *Sultan il gamiem tat-toppu.*

Schembri records a specimen captured in April 1815, and another seen at Casal Lia at the same time. Wright says that he knew of three specimens shot in Malta in May 1854, and in the fifth appendix to his list he records a specimen obtained by him in the market on the 18th of April, 1867. I have never met with the species in these islands, and the only example which I know is the one in the University Museum, and this, as with the majority of the older specimens, bears neither date nor locality.

162. (164) **Bubo bubo bubo** (L.). The Eagle-Owl.

Local name: *Cocca imperiali.*

I have seen a stuffed specimen in Schembri's collection at San Giorgio a Mare, and there is also another one in the University Museum; neither of these, however, bears any date or locality. I have been assured, however, that the species has occurred in the island and was known by the local name given above. Capt. A. V. Falzon, Sant Manduca, assures me that some time ago he shot a large Owl at Pembroke (Malta), and according to his description of the bird I cannot ascribe the individual except to this species. In Giglioli's Avifauna the local name *Omm is subien* is given; this name, however, is already applied to the Short-eared Owl. For the occurrence of this species in Malta further evidence is desired.

163. (163) **Otus scops scops** (L.). The Scops Owl.

Local name: *Cocca.*

This is one of our common birds which occurs on passage during both seasons. In the autumn the first arrivals are generally noticed by the first or second week of October, and in the spring they are frequently observed towards the beginning of February; but, as I have often met with the species also in December and January, I am inclined to say that it may be considered as a partial resident too. So persecuted are these poor birds that few chances are given them to escape. They are slaughtered in great numbers during both the spring and autumn, and in the former season especially I have many times seen, in my visits to the Valletta Market, large heaps consisting of several hundreds of these birds.

164. (161) **Asio otus otus** (L.). The Long-eared Owl.

Local name : *Kattus.*

Wright says that, looking over some skins collected in Malta by Dr. Leith Adams, he observed one of these birds ticketed "Malta, 12th October, 1861." He also notes one in our Museum which he says was probably taken in Malta, though no locality is mentioned. In the first appendix to his list he records a specimen in his collection taken on the 17th of December, 1863, and in the fourth appendix he also says that during the last two years he observed several specimens in the market, and this both in the autumn and vernal periods of migration ; and, lastly, he records a live specimen seen by him on the 20th of October, 1869. I quite admit that the species is by no means frequent, but at the same time I wonder how Schembri did not meet with it. During the last ten years I have seen more than a dozen specimens, and have been assured that in 1890 the species occurred in pretty large numbers. The local name in Giglioli's Avifauna is *Omm is subien* for this species also ; so I prefer the one given above, which I have obtained from several sportsmen and which is almost the equivalent of one of the Italian names of the species, viz., "Testa di Gatto."

165. (162) **Asio flammeus flammeus** (Pontoppidan). The Short-eared Owl.

Local name : *Omm is subien.*

Pretty common on migration during both seasons and may be considered also a partial resident with us, as a few individuals are to be met with here from October to May. Both Schembri and Wright record the species as one which every now and then breeds in these islands, and this I was able to confirm on the 4th of May, 1906, when a nest containing a brood of five was found in the vicinity of Siggiewi ; subsequently on the 18th of May, 1909, I found a nest myself at Wied Znuber ; this contained a clutch of three eggs.

166. (165) **Carine noctua noctua** (Scop.). The Little Owl.

Local name : *Cocca rara.*

Schembri in his catalogue gives the Sparrow-Owl, saying it is very rare. Wright also reports the same species, adding, however, that though the specimens sent by Schembri to Prince Charles Lucien Bonaparte were determined by the eminent naturalist, he could not help thinking that there must have been some confusion in the nomenclature and that the specimens were more probably *Athene noctua*, var. *meridionalis.* I have not seen any other specimen except the one in the University Museum, and this was taken by my friend Prof. R. Falzon, who recorded the occurrence in 'Il Naturalista Maltese' of 1890.

167. (164) **Tyto alba alba** (Scop.). The Common Barn-Owl.

Local name : *Barbagianni.*

This Owl was formerly very common and used to nest even in the old battlements surrounding the towns. It is now, however, one of our rarer birds, and if it were not for fresh arrivals from abroad the species would be extinct amongst us. The Barn-Owl is now protected, and it is hoped that our country-people will cease to persecute this bird, which is one of their best allies.

168. (186) **Falco peregrinus peregrinus** Tunst. The Peregrine Falcon.

Local name : *Bies prim.*

Schembri says that this species occurs in March and September, and also breeds with us. Wright reports it as occurring in spring and autumn, and occasionally in other seasons too—in fact, he records a female taken in a net on the 26th of December, 1860. He also states that these birds have been known to breed in the precipitous rocks of Malta and Gozo, and that for several years a pair nested in the inaccessible cliffs near Zurrico. In the second appendix to his list he records an individual obtained by him on the 4th of May, 1864; this he says seemed to approach *Falco barbarus* (i. e., *F. p. pelegrinoides*) in the ruddy colouring of the under surface. My friend Colonel Francia assures me that nests of this Falcon have often been found at Tacenc (Gozo), and that eggs from this locality have been brought to him. It has now to be settled whether the specimens alluded to belong to this subspecies. There is no doubt, however, that the typical Peregrine occurs; in fact, I have a female in my collection which was sent to me in the flesh by my friend Mr. L. Cachia Zammit, who shot it in Weid il Buni in November 1915.

169. (187) **Falco peregrinus pelegrinoides** Temm. The Lesser Peregrine.

Local name: *Bies second.*

It seems that the majority of the birds taken in these islands and considered to be Peregrine Falcons are nothing but examples of the present species, and some netters and dealers seem to be also aware of the difference—so much so that they call the present species by the name which I have given above.

170. (185) **Falco cherrug cherrug** J. E. Gray. Saker.

Local name: *Seker.*

I have seen only two specimens of this species, obtained in the island. The first was taken in the autumn of 1901 in the neighbourhood of Wardia, and was mounted by Mr. Micallef, in whose collection it now is. The second was taken in the nets by Rosario Psaila in November 1908, in the vicinity of Birzebbugia. The local name *Seker* is given to several other species of the genus.

171. (189) **Falco biarmicus feldeggii** Schlegel. The Lanner.

Local name: *Bies rar.*

Recorded by Jaubert and Lapommeraye (Rich. Orn. Midi France, 1855, p. 55), who cite Malta as a locality, but do not state their authority. The local name for this species was suggested by the Hon. Dr. Magro.

172. (192) **Falco eleonoræ** Gené. Eleonoran Falcon.

Local name: *Falchett tar regina.*

Colonel Drummond-Hay shot a specimen in Malta, and this was recorded by Wright, who says that another specimen was taken alive on the 4th of May, 1864. Giglioli, very probably alluding to these specimens, states that the species has occurred in Malta at least twice. I have been informed by Mr. Micallef that he handled several specimens which very probably belonged to this species. I have not yet, however, succeeded in seeing an example, so that I consider the species rare and perhaps overlooked. The local name, *Falchett tar regina*, I obtained from Mr. Micallef.

173. (191) **Falco subbuteo subbuteo** L. The Hobby.

Local name: *Seker tal harnnicka.*

More or less common during its migrations in spring and autumn. I quite agree, however, with Wright that it is much scarcer in some years than in others. I have several times been assured that the species breeds occasionally with us, and this I confirmed on the 12th of May, 1910, when I obtained a nest. As I often heard the local name "Pellegrin" applied to this bird, I am inclined to think that this is the species alluded to by several observers under the name of *Falco peregrinus*, which they say is here a common resident and breeds. In Giglioli's Avifauna the local name given is *Bies*. This name is, however, used for several species of the genus, and for this reason I have preferred the one which I have given.

174. (190) **Falco æsalon æsalon** Tunst. The Merlin.

Local name: *Seker ta denbu.*

Schembri says that this species is very common during the autumn, and Wright that it is not uncommon during both seasons and particularly in the autumn. From my own observations, however, I should say that the species is generally very scarce—in fact, I have only been able to obtain one specimen, and have seen two or three others. The local name was obtained from the dealers on St. John's Square, the words *ta denbu* having been evidently added to distinguish it from others of the same genus which are called also by the name *Seker*.

175. (194) **Falco tinnunculus tinnunculus L.** The Kestrel.

Local name : *Spanjulett.*

A common bird of passage during both seasons. A pair or two are often met with all the year round. It breeds here occasionally, and would do so more frequently if it were not so persistently persecuted. I have several times seen its nests taken from the cliffs overhanging the sea on the south of the island, but have not yet been able to confirm Schembri's and Wright's statement that it breeds in fortifications, though I quite believe that it did so when the number of sportsmen was not so great.

176. (195) **Falco naumanni naumanni Fleisch.** The Lesser Kestrel.

Local name : *Spanjulett second.*

According to Schembri, this species occurs on passage only in March and April ; but Wright says it is not uncommon in April and May and that he obtained it during the autumn as well. I have never met with it during this season, but, though generally in small numbers, I have always observed it in the spring. I say generally, because I remember two or three seasons when it arrived in considerable numbers—it was very common, for instance, in May 1915. Giglioli gives the local names *Spanjulett* and *Sparvier*—the first is only generic, the second is unquestionably never given to this species at all.

177. **Falco vespertinus vespertinus L.** The Red-footed Falcon.

Local name : *Zumbrell.*

According to Schembri, this species arrives together with its congeners, but occurs in much smaller numbers and not annually. Wright says that it visits us in the autumnal and vernal periods of migration, occurring, however, in much larger numbers during some years. I have met with it during both spring and autumn, but it is usually more common during the spring. I have often observed it passing in flocks consisting of more than a dozen or so; but I remember also a year or two when not a single specimen was seen. On the 27th of October, 1910, while I was at Binghisa, I saw a flock of these Hawks composed of not less than one hundred individuals. Besides the name given above, this bird is also known locally as *Spanjulett ichal* and *Vespertim*; the last of these appears, however, to have fallen into disuse.

178. Aquila chrysaëtus chrysaëtus (L.). The Golden Eagle.

Local name: *Ajcla reali.*

Two occurrences of this species are recorded, the first being a specimen taken in 1869, of which Wright secured the head and neck; the second is the one recorded by Wright in his fifth appendix, and which was shot in November 1873. Giglioli gives the Maltese name for this species simply as "*Aicla*"; this, however, besides being generic, is applied also to the Egyptian Vulture. The name given is the equivalent of the Italian.

179. (175) Aquila pomerina Brehm. The Lesser Spotted Eagle.

Local name: *Ajcla tat-ticchi.*

In 1911 I saw a specimen in Mr. Micallef's collection; this was shot by Capt. S. Stivala at Comino. I have been informed by Mr. Micallef that he saw a specimen ticketed "Malta, 1862." If this is not one of the birds given by Wright under the Latin name *Aquila nævia*, then the specimens taken in Malta are three. Count Arrigoni also cites Malta as a locality where the species has occurred. The local name appears to have been given by Mr. Micallef, from whom I heard it.

180. Aquila heliaca Savigny. The Imperial Eagle.

Local name: *Ajcla imperiali.*

Reported by Schembri, on the authority of Dr. Grech Delicata, who is stated to have observed it in October 1842. Prof. Gulia says that he has been assured by Mr. L. Gouder that this Eagle has been met with several times at Gozo. Count Arrigoni is of opinion that the captures of Imperial Eagles mentioned by several authors (amongst which Schembri is included) are to be corrected, the specimens being only Golden Eagles. The Maltese name, which is equivalent to the English and Italian, is given in Gulia's 'Repertorio di Storia naturale.'

181. (178) Haliastur indus (Bodd.). Brahminy Kite.

Local name: *Astun rashu bajda.*

There exists a specimen in the University Museum which is unfortunately in a very bad state of preservation; this was taken in the vicinity of Siggiewi in 1896 by Mr. P. Mifsud Ellul, who presented it to Mr. Leach—at that time Curator of the Museum. The local name means White-headed Kite.

182. (179) Circaëtus gallicus (Gmel.). The Short-toed Eagle.

Local name: *Ajcla.*

Schembri says that this species is rather rare and does not occur annually, and that it generally appears in August and September. Wright, who also states that it is very rare, records a specimen killed in Gozo at the end of August 1857. This is very probably the specimen which is preserved in the Natural History Museum, and is unfortunately in a very bad condition. Besides this I have seen two mounted specimens in Mr. Micallef's collection, and a live one which was taken in the neighbourhood of Wardia during the first week of October 1914.

183. (174) **Buteo lagopus lagopus** (Brün.). The Rough-legged Buzzard.

Local name : *Cucciarda bil calzetti.*

According to Prof. Gulia this species was met with by Professors Zerafa and Grech Delicata in 1843. Gulia also records a specimen killed in the neighbourhood of Zurrico in 1859; this is very probably the one which can be seen in the University Museum. In the summer of 1915 a specimen was shot in the neighbourhood of Birzebbugia. I was informed by Mr. Micallef that two or three specimens have been mounted by him, but these I have not seen.

184. (173) **Buteo buteo buteo** (L.). The Common Buzzard.

Local name : *Cucciarda prima.*

Giglioli gives the Maltese name for this species, and so Blasius includes it in his list of Maltese birds. On the 2nd of October, 1908, a specimen was shot in the vicinity of Zurrico by Pietro Darmanin (Tal melh) who sent it over to me. Besides this I have seen another specimen in the collection of Mr. Micallef, who informed me that he had handled one or two more of these birds, all of which occurred during the autumn months. The species is undoubtedly rare and quite occasional in its visits.

185. **Haliaëtus albicilla** (L.). The White-tailed Eagle.

Local name : *Ajcla bajda.*

Reported by Blasius, apparently for the sole reason that Giglioli gives the Maltese name. Consequently, I consider the species as one of doubtful occurrence.

186. (169) **Circus æruginosus** (L.). The Marsh-Harrier.

Local name : *Bughadam ahmar.*

Occurs on passage during both seasons, but is more common in the spring, when the first arrivals are noticed in March. The birds, however, continue to be observed until the middle and sometimes even the end of May.

During the autumn they are generally seen by the middle of September and continue their passage for about one month.

187. (170) Circus pygargus (L.). Montagu's Harrier.

Local name: *Bughadam.*

Both Schembri and Wright state that this Harrier occurs annually during both seasons, but is not so common as its congeners. I have met with it frequently during the spring; in the autumn, however, I only came across it once. Besides the local name given, Giglioli mentions another, *Bughadam abjad second.*

188. (172) Circus cyaneus (L.). The Hen-Harrier.

Local name: *Bughadam abjad prim.*

Generally occurring in pretty good numbers during the spring, a few being also met with during the autumn months. Wright states that, although he had examined as many as thirty females in one season, all exhibiting the white rump or having it very lightly spotted, he never met with an adult male.

189. (171) Circus macrourus (S. G. Gmel.). The Pallid Harrier.

Local name: *Bughadam abjad.*

No mention is made of this species in Schembri's catalogue, and it seems that it was first reported by Prof. Gulia in his 'Repertorio di Storia Naturale,' published in 1858–59. Wright says that it is perhaps the most common of the Maltese Harriers, and that it occurs during the same seasons, being, however, most abundant in April. I, too, have found it fairly common in some years during the spring, but have never yet seen it in the autumn. I remember also some years when not a single individual could be observed.

190. (180) Astur palumbarius (L.). The Goshawk.

Local name: *Bies tal hamiem.*

Schembri says that this species is occasionally met with during the summer and autumn. Wright, however, states that he has never met with it. Mr. Micallef, who has handled about half a dozen of these birds, informed me that all were obtained during the spring. I have seen an individual in April and another in July. Giglioli gives the Maltese name *Seker* for this species, but the one given, which is an equivalent of the Latin and which I obtained from Mr. Micallef, is much more to the point. Besides, the local name *Seker* has already been given to another Hawk.

191. (181) **Accipiter nisus nisus** (L.). The Sparrow-Hawk.

Local name : *Sparvier.*

Both Schembri and Wright report this species as fairly common. The first says that it begins to arrive towards the commencement of autumn and continues to be met with throughout October ; the second says that it occurs on passage during both seasons, and is occasionally seen also during the summer months ; in October and November, he adds, it is met with more frequently. I have seen specimens taken during both the spring and autumn ; but, though the species appears to have been more common in the time of Schembri and Wright, at present it has undoubtedly become very scarce.

192. **Melierax gabar** (Daud.). The Gabar Goshawk.

Wright doubtfully reports this species on the authority of Mr. Hugh Strickland.

193. (182) **Milvus milvus** (L.). The Kite.

Local name : *Astun.*

According to Schembri the Kite is more frequent in Gozo than in Malta, though in neither of the islands can it be considered a common bird. He also says that several sportsmen from Gozo state that it breeds in the southern cliffs of that island during the month of May. Wright, who considers the species rare, says that he could not confirm the fact of its breeding in these islands. I have seen only five specimens, all of which occurred in October 1904.

194. (183) **Milvus migrans migrans** (Bodd.). The Black Kite.

Local name: *Astun iswed.*

Schembri states that these birds, which he considers not common, occur on passage in April and September, when a few are annually taken. Wright calls the species very rare. In the fourth appendix to his list he records a specimen seen by him in the market on the 20th of September, 1864; and in the fifth appendix he mentions another, also seen by him in the market, on the 10th of September, 1872: the skin of this one, he says, was preserved. I have seen only three specimens. The first occurred in July 1896; the second in May 1913; and the third is in my collection, and was shot by my friend Prof. E. C. Vassallo, on the 27th of September of the same year.

195. (184) **Pernis apivorus apivorus** (L.). The Honey-Buzzard.

Local name: *Cucciarda.*

Both Schembri and Wright say that this species is common on migration during both seasons, when flocks of six to a dozen are sometimes seen. I consider the species as one which is annually becoming scarcer—so much so, in fact, that during the last six years I have only been able to procure five examples, one of which was taken in September and the other four during the spring. During the month of May 1916 these birds appeared to be exceptionally common and continued to be observed till the second week of June.

196. (196) **Pandion haliaetus haliaetus** (L.). The Osprey.

Local name: *Arpa.*

No mention is made of this species in Schembri's catalogue. Wright, however, says that, though it is by no means common, it frequently shows itself in our creeks and harbours during its migrations in spring and autumn. In the fifth appendix to his list of Malta birds he records a specimen seen by him in the market on the 1st of September, 1871, and another observed by him at the Salina on the 23rd of May, 1874. I have seen in all about ten or a dozen specimens, all of which occurred during the summer months; the earliest of these was seen on the 8th of June, and the latest was taken on the 25th of September. I was informed by Mr. Micallef that he has only once handled a specimen during the spring. I was told also by a husbandman from San Giorgio a Mare that he shot one in the spring of 1915; this, however, was taken from him by a sportsman in the locality, though it was intended as a present for me.

197. (167) **Gyps fulvus fulvus** (Hablizl). The Griffon-Vulture.

Local name: *Avultun prim.*

In the University Collection there is a specimen which was taken in Malta and about which Dr. J. Galizia published a note in 'Il Naturalista Maltese' of 1890.

198. (168) **Neophron percnopterus percnopterus** (L.). The Egyptian Vulture.

Local name: *Avultun.*

Occurs on passage during the autumn, but must be considered as one of our rare birds. I have not seen more than ten specimens taken in the island. The example in my collection was sent to me by my friend Mr. W. Vassallo from Gozo, where it was shot in the last week of September 1914. There is one in Col. Francia's collection which is in almost perfect white plumage: the bird, however, had undergone a moult whilst in confinement in the Colonel's garden.

199. (209) **Ciconia ciconia ciconia** (L.). The White Stork.

Local name: *Ciconja bajda.*

Schembri says that the first individual seen by him occurred in April 1840, and Wright records one shot on the 22nd of March, 1857, and two others sent to him by Capt. Carr, R.A., who had shot them on the 4th and 7th of May, 1863. There are two specimens in the University Museum. One of these is very probably that mentioned by Wright; the other, as I have been told, was picked up in the market, where it was imported together with other game from the north coast of Africa. I know of another specimen in the possession of Mr. L. Naudi of Rabato (Malta), by whom it was mounted, and one or two in Col. Francia's collection. On the 10th of May, 1916, two specimens were shot in the neighbourhood of Birzebbugia by two countrymen — Lorenzo Zammit (Ciaprott) and Michele Bonnici (Tal Kerkni) by name. On the same day another of these birds was shot at Marsascirocco, and another three at Marfa which is just at the opposite end of Malta. My friend Prof. Vassallo procured for me one of these last three; another I was told was mounted by Mr. L. Naudi, and the third was consigned to the pot.

200. (210) **Ciconia nigra** (L.). The Black Stork.

Local name: *Ciconia sewda.*

Schembri says that this species is not so rare as the preceding, and that it occurs during the winter months, when some are taken almost every year. Wright, who considers the species rare, records three individuals which he saw alighting on some carob trees in St. Julian's Valley in April 1852, and another in his possession which was shot in May 1863; this is very probably the specimen which is preserved in the University Museum, though it bears neither locality nor date. I have not yet succeeded in meeting with the species, so that I consider it very rare. For both this and the foregoing, besides the local name given, Giglioli adds the Maltese name *Grua.* This is, however, undoubtedly given only to the Crane.

201. (211) **Platalea leucorodia leucorodia** L. The Spoonbill.

Local name: *Paletta.*

Schembri records two individuals seen by him at Marsascirocco on the 14th of October, 1839, and others taken during the month of June in 1840 and 1842. Wright records one observed on Fort Manoel in May 1858, and the same, or perhaps another, shot a few days later at St. Paul's Bay, and another a few weeks later. Besides these, he also records three shot in Gozo in the spring of 1860, another at Marsascirocco in November of the same year, one of two more killed in May 1861, two in June 1862, and a young one which was in his possession and which was obtained at the Salina on the 21st of September, 1862. I know of one specimen which was taken in Malta—it was shot by M. G. Molieras at Marsascirocco in the spring of 1909: another was observed by me at the salt-pans of Birzebbugia in the summer of 1916.

202. (212) **Plegadis falcinellus falcinellus** (L.). The Glossy Ibis.

Local name: *Velleran.*

Schembri says that this species is very common during its migrations in March and September, and Wright considered it as a pretty regular visitor during both seasons, when it is usually seen in small flocks. From my own observation I should say that these birds are rather scarce, though they visit us regularly during both periods of migration. I have seen solitary individuals as early as the first week of April. In Gozo the species is known by the local name of *Serduk* or *Hasi tal bahar,* and on two or three occasions I have heard this name used in Malta as well.

203. (200) **Ardea cinerea** L. The Common Heron.

Local name: *Russett griz.*

Schembri says that this species, which he considers rather common, occurs on migration annually towards the end of autumn, and is to be met with till the middle of winter. Wright considers the species not uncommon during both the spring and autumn and that it is sometimes seen during the winter as well. At present it is undoubtedly one of our scarce visitors, generally appearing both in autumn and spring. It is also known locally by the name of *Russett irmiedi*, which is practically the same as *Russett griz*. The Maltese name *Russett imperial*, which is given by several ornithologists, is apparently no longer in use.

204. (201) **Ardea purpurea purpurea** L. The Purple Heron.

Local name : *Russett.*

Schembri says this species is rather common, and that it appears during the winter and spring. Wright states that large flocks may be seen passing in spring and autumn, and that these often alight on the carob-trees and along the sea-shore. I consider it as generally very common during the period of both migrations. In the spring the first arrivals are noticed by the beginning of March ; in the autumn they are to be seen by the middle of September and continue to pass till late in November. I noticed that during this season the individuals which visit us are mostly young birds of the year. Besides the local name given, we find in several other lists the name *Russett culur cannella* ; this, however, appears to have dropped out of use.

205. (202) **Egretta alba alba** (L.). The Great White Heron.

Local name : *Russett imperial.*

Recorded by Schembri as rather rare, and not seen annually. I have never seen a specimen taken in these islands, and have heard only of one being shot during the last twenty years. The local name given by Schembri is *Quack abjad*, and Giglioli gives also *Ajrun abjad*. I find, however, that several sportsmen who state that they have observed the species know it by the local name given above. Besides this, the Maltese name *Quack* or *Kuakk* or *Cuacc* is intended for the Night-Heron, and *Ajrun*, as already stated, is given also to the Crane.

206. (203) Egretta garzetta garzetta (L.) The Little Egret.

Local name: *Agrett abjad.*

Schembri says that this species is very common in March and September. Wright, too, says it is common during both seasons, when large flocks are usually observed passing in company with the Purple Heron. At present it is unquestionably one of the rarer species which favour us with a visit at rather long and irregular intervals—in fact, I have not seen more than eight or nine examples in all. The bird is also known locally by the simple name of *Agrett.*

207. (204) Ardeola ibis ibis (L.) The Buff-backed Heron.

Local name: *Agrett isfar prim.*

Wright mentions the specimen preserved in the University Museum, and says that Schembri records the capture of two others. The local name was suggested by the late Prof. Tagliaferro.

208. (205) Ardeola ralloides ralloides (Scop.). The Squacco Heron.

Local name: *Agrett isfar.*

According to Schembri this species, which he considers as not very common, generally arrives here during the month of May. Wright states that he has met with it in June, and that it passes also in September. According to my observations it occurs on passage during both seasons, being common in some years, while in others it is very scarce. During the spring it makes its appearance in April, and is often to be met with even late in June. In the autumn the first arrivals are seen by the first or second week of September, and till the middle or end of October single individuals may sometimes be met with.

209. (206) Nycticorax nycticorax nycticorax (L.). The Night-Heron.

Local name: *Cuacca.*

Occurs on passage during both the spring and autumn, when considerable numbers often pass, generally during the night. In the former season the species is often observed in the middle of March, and is to be met with till the end of May and sometimes even till the beginning of June. During the autumn I have often observed the first arrivals by the second or last week of August. The bulk of the birds, however, arrive late in the following month.

210. (207) Ixobrychus minutus (L.). The Little Bittern.

Local name: *Russett tas-sigiar.*

A common bird of passage during both seasons; it is more abundant, however, during the spring. During this season it likes to frequent the sulla and corn-fields, in the autumn it prefers to roost in the carob-trees: for this reason it is called both *Russett tas-sigiar* (Tree-Heron) and *Russett tas-silla* (Clover-Heron). The local name *Blongios*, given by Schembri, Wright, and several others, has evidently fallen into disuse.

211. (208) Botaurus stellaris stellaris (L.). The Bittern.

Local name: *Cappun imperial.*

In Schembri's time this species appears to have been on the increase, but Wright considers it rather scarce. At present it is unquestionably of rather rare occurrence—in fact, during the last ten years I have not seen a dozen specimens. I have three in my collection, all of which were taken during the spring, but Schembri says that their passage occurs during the winter months.

212. (213) Phœnicopterus antiquorum Temm. The Flamingo.

Local name: *Fiamingu.*

Schembri says that a few individuals are seen almost annually during the month of June. Wright also states that it generally appears during this month, but considers it an accidental visitor; he records one shot in May 1860, a pair in the winter of 1867–68, a third on the 22nd of August, 1870, and a fourth seen flying over Floriana in April 1874. I have seen only two specimens—one was shot in Marsascirocco in July 1909, the other at the Salina in June 1916. There is a specimen in the University Museum; this, however, bears no date or locality. I know also of several other specimens mounted by Mr. Micallef; these, however, were all imported birds which had died in captivity. In the fifth appendix to his list of Maltese birds, Wright records the capture of a specimen of *P. erythræus* (= *P. minor*) at Marsascala by Capt. Azzopardi on the 27th or 28th of March, 1869, during a strong north-westerly gale.

213. (219) **Cygnus cygnus** (L.). The Whooper-Swan.
Local name: *Cinju.*

Schembri in a note at the end of his catalogue says that he has never seen the Swan in Malta, but that he heard from several persons that birds which are known by the local name of *Cin* or *Zin* make their appearance every now and then. Wright mentions the specimen in the University Museum, which was shot on the 27th of January, 1847, saying that it is the only one examined by him, though it had long been known that small flocks of Swans have been observed flying along the coast of these islands in stormy weather. I have not seen a specimen in the flesh myself, but I have been assured by Mr. Micallef that he mounted an example about eighteen years ago. In the fifth appendix to Wright's list of Maltese birds it is stated that the *Cygnus* alluded to in 'The Ibis' of 1864 was doubtless a young of *C. olor*. The local names *Czinna*, *Zinna*, *Cin*, and *Zin* have fallen into disuse, the one given above being that which is used by all the Maltese.

214. (218) **Cygnus olor** (Gm.). The Mute Swan.
Local name: *Cinju mutu.*

Wright reports the species in the third appendix to his list, saying that a flock was observed by him in Sliema Creek on the 23rd of December, 1865, and another was killed at the Salina on the 21st of the same month. The local name *Czinna bajda,* given by Giglioli and Blasius, is no longer in use. The one given is that by which the species is at present locally known.

215. (214) **Anser anser** (L.). The Grey Lag-Goose.

Local name: *Wizza griza.*

This species appears to be recorded for the first time amongst our birds by Blasius. Giglioli gives the local name *Wizza selvaggia.* This is, however, already occupied by the Bean-Goose; so that the name here given, which is nearly an equivalent of the English, is to be preferred. I have seen only one specimen and consider the species a mere straggler to our shores.

216. (216) **Anser albifrons** (Scop.). The White-fronted Goose.

Local name: *Wizza tal mas crabajda.*

Blasius reports this species in his list evidently for the sole reason of his having found the Maltese name in Giglioli's avifauna. And yet this is incorrect, as *Wizza bajda* means "White Goose," while the present species is not white at all. Consequently, the inclusion of the species amongst our avifauna might easily have been a mistake. On the 9th of January, 1914, however, I found five specimens in the market at Valletta; these were shot the day before in the vicinity of Xrobb il Ghagin. Two of these birds were in a pretty good state; the other two were much broken up; while the fifth was in such a bad condition that it could not be preserved in any way. Of the four specimens mounted, a pair are in my private collection and a pair in the University Museum. The local name was suggested by the Hon. Dr. Magro, and is practically an equivalent of the English.

217. (215) **Anser fabalis fabalis** Lath. The Bean-Goose.

Local name: *Wizza salvaggia.*

Schembri reports the species as very rare, saying that it appears only during the winter. According to Wright, flocks of these Geese are sometimes seen passing along the coast of these islands, especially in stormy weather. The first specimen which I came across was shot out of a flock of about forty individuals at "il Brolli," a locality in the vicinity of Birzebbugia, by a country-lad named Giovanni Bonnici (Tal Kerkni) in November 1909. I have a specimen in my collection which I picked up in the Valletta Market in the winter of 1913.

218. (217) **Alopochen ægyptiacus** (L.). The Egyptian Goose.

Local name: *Wizza tal' Egittu.*

On the 12th of March, 1914, Mr. Ch. Naudi was so kind as to send to me a specimen of this species, which was shot the day before at Baharicciaghac by Giuseppe Parnis, a farmer of Casal Gargur. The specimen did not show any sign of its having been kept in confinement, and on this point I have not the slightest doubt; it now forms part of my private collection. In the University Museum there is also a specimen, but this, as usual, bears neither date nor locality, and besides is in a very bad state of plumage, which adds much to the doubt of its having been really taken in a wild state.

219. (220) **Tadorna tadorna** (L.). The Common Sheld-Duck.

Local name: *Culuvert ta Barbarja.*

Schembri says that these birds occur on passage during the winter, especially in January, but not in any great numbers. Wright says that they are generally seen by the end of October or the beginning of November, and a few pass also throughout the winter months. From my observations I cannot but consider the species as scarce and irregular in its visits; of the eleven specimens which I have seen taken in these islands, one occurred in December, two in November, one in October, three in February, two in March, two in April, and one in May. Though the name *Culuvert* is given to the drake, the duck of the present species is called by that name as well.

220. (221) **Tadorna casarca** (Linn.). The Ruddy Sheld-Duck.

Local name: *Culuvert ta Barbarja ahmar.*

Wright records a specimen shot by Signor F. Borg. Giglioli mentions three specimens recorded by Wright, saying that only one date is given, namely, for that taken in December 1864. A specimen was brought into the Valletta Market in January 1911; this was, however, in such a bad condition that it could not be preserved. The local name is, like the English, an equivalent of the Latin.

221. (222) **Anas boschas boschas** L. The Mallard.

Local names: *Culuvert* ♂, *Borca* ♀.

Schembri says that this species is rather common along our coast during the winter; and Wright, who calls it not uncommon, says that it occurs in November and December, and appears again in March. From my personal experience I should say that, though a regular migrant during both spring and winter, it is a rather scarce bird. I have known individuals taken during the summer and autumn; in the former, however, its occurrence must be considered quite exceptional. Besides the name given above, *Culuvert prim* and *Borca prima* are also assigned to this species. I have seen several large flocks of these birds passing during stormy weather, and they apparently continue their way without alighting.

222. (223) **Anas strepera** L. The Gadwall.

Local name: *Culuvert second.*

Schembri says that the Gadwall is common here during the winter, and Wright states that it is only occasionally observed. According to my own observations it is by no means common: in fact, I have seen only three specimens in the flesh—the first was shot on the 4th of October, 1912, in the vicinity of St. Paul's Bay, the other two I found in the Valletta Market, on the 14th of January, 1913, and on the 3rd of February of the same year. Besides these, however, I have seen several mounted examples in Mr. Micallef's and other collections, and, so far as I could make out, the majority were taken during the winter months.

223. (227) **Anas crecca crecca (L.).** The Teal.

Local name : *Sarsella.*

Fairly common at all seasons, but is more frequent during the winter and spring. I remember years when it appeared in rather large numbers, and I know others when it did not come at all. The male is also known locally as *Culuvert tas'sarsella,* but the name here used is generally given to both sexes.

224. (228) **Anas formosa (Georgi).** The Baikal Teal.

Local name : *Brajmla tas Siberia.*

A specimen in my collection was shot at San Giorgio a Mare by Fedele Caruana, a farmer of that locality, on the 16th of April, 1912. Later on I came to know from Caruana that the example was in company of two others, which, from the description given me, appear to have been two females, while the one which was killed was the male. I mention this circumstance as it serves to clear away any doubt of the specimen in question having been an individual escaped from captivity, though I am sure that its excellent state of plumage is a quite ample proof that it was taken in an absolutely wild state.

225. (226) **Anas querquedula L.** The Garganey.

Local name : *Sarsella hamra.*

According to Schembri this species, which he considers common, occurs from April onwards. According to Wright it is not uncommon in spring and autumn, and is occasionally seen in the summer. I have met with it almost at all seasons, but it is only common during the spring.

226. (230) **Anas penelope L.** The Wigeon.

Local name : *Silfiun second.*

Schembri says that this species is rather common, and generally occurs on passage in December and January. Wright says that it is not uncommon in winter, and is sometimes seen during the summer; he records a specimen shot on the 8th of June. I have seen only seven specimens and these occurred in different months. I was informed that several were observed on the 11th of May, 1914, and many others about a week later; in spite of this, from my own observations, I consider the species a scarce one. The adjective *second* has been added to the local name *Silfiun*, at the suggestion of the Hon. Dr. Magro, to distinguish it from the Pintail, which is also known by the local name of *Silfiun*.

227. (224) **Spatula clypeata** (L.). The Shoveler.

Local name: *Palettuna.*

Wright calls this species one of the commonest of the Maltese Ducks, occurring on passage from November to March. Though I have met with it several times, I cannot say that it is common, and I know years when not one specimen could be seen.

228. (225) **Marmaronetta angustirostris** (Ménétr.). The Marbled Duck.

Local name: *Brajmla gheddumu rkik.*

Wright records a specimen met with by him and Capt. Feilden in the Valletta Market on the 11th of May, 1874. This specimen, which, on dissection, proved to be a female, formed part of Captain Feilden's collection. The local name, which is an equivalent of the Latin, was given to the species by the Hon. Dr. Magro.

229. (229) **Dafila acuta** (L.). The Pintail.

Local name: *Silfiun.*

Schembri says that this species is rather common and occurs, together with its congeners, during the winter. I think, however, that Wright is more correct in stating that it is occasionally seen during the winter, although I have met with it also at the beginning of spring.

230. (231) **Nyroca rufina** (Pall.). The Red-crested Pochard.

Local name: *Brajmla tal' toppu ahmar.*

Wright records a specimen taken on the 1st of September,

1861. I know of the occurrence of three other individuals, the first being the one which is preserved in the University Museum—this was shot at Marsascirocco in January 1892; the second was obtained in the Valletta Market on the 4th of April, 1904, the third was taken in December 1914, both these have also been preserved—I could not make out, however, where they are to be found at present. The local name was given to the species by the late Prof. Tagliaferro.

231. (232) Nyroca ferina ferina (L.). The Common Pochard.

Local name: *Brajmla hamra.*

Wright says that the first Maltese specimens he saw were a male and a female shot by him on Fort Manoel Island in November 1858; he records also one shot in Sliema Creek by Mr. Medlycott in December 1859, and states that from that year he met with a few individuals at the market annually. I have seen two or three specimens in the market; these, however, were imported with other game from Sicily, and I have not yet succeeded in seeing a locally taken one.

232. (235) Nyroca nyroca (Güldenst.). The White-eyed Pochard.

Local name: *Brajmla.*

Both Schembri and Wright say that this species is common—it is by no means so, however, at present; I know two or three seasons when it occurred in good numbers, but this is to be considered exceptional. The species is undoubtedly more frequent during the winter, though it is observed also during the autumn and spring.

233. (234) Nyroca fuligula (L.). The Tufted Duck.

Local name: *Brajmla tat-toppu.*

Schembri says that this Duck, which is met with always during the winter, is rare. Wright calls it very rare, and, in the fifth appendix to his list, he records a specimen noticed in the market by Capt. Feilden on the 19th of November,

1873. I have a specimen in my collection which was shot at Marsascirocco during the third week of March 1910.

234. (233) **Nyroca marila marila** (L.). The Scaup Duck.

Local name: *Brajmla rasha seuda.*

I observed a drake of this species on the shore below Fort St. Lucian in Marsascirocco harbour on the 26th of September, 1909. This species being so easy to identify, I include it without any hesitation in our list.

235. (236) **Glaucionetta clangula clangula** (L.). The Golden-eye.

Local name: *Brajmla talghain.*

A quite accidental visitor recorded by Wright, who mentions a female taken in December 1870. I saw a mounted specimen, which was killed on the 2nd of February, 1909. Blasius and Giglioli give the local name *Brajmla zghira*; that given here, however, which was suggested for the species by the Hon. Dr. Magro, is, in my opinion, much more to the point.

236. (237) **Erismatura leucocephala** (Scop.). The White-headed Duck.

Local name: *Brajmla rasha bajda.*

Wright records a specimen taken in January 1864. Blasius and Giglioli give the simple local name *Brajmla*; the one used here was given to the species by the Hon. Dr. Magro; it is simply, like the English, an equivalent of the Latin name.

237. (238) **Mergus merganser merganser** (L.). The Goosander.

Local name: *Serra prima.*

This species figures as one of doubtful occurrence in a list by Wright published in 1862, and was subsequently left out, as Wright himself says, for want of satisfactory proof. I have seen, however, a specimen mounted by Mr. L. Petroni of Paris; it was shot at Birzebbugia by Mr. L. Cachia Zammit in the winter of 1908.

In Giglioli's 'Avifauna Italica' the Maltese name for this species is *Margun*, which is undoubtedly an error—this name being applied by the Maltese only to the Cormorants. I obtained the name here used from Mr. Petroni and one or two sportsmen who had seen the specimen already mentioned.

238. (239) **Mergus serrator** L. The Red-breasted Merganser.

Local name: *Serra.*

This species occurs in pretty large numbers during some years, in others, however, it is not observed at all. It is met with more frequently during the winter, though I have seen it taken also in the autumn and at the beginning of spring. I have only met with one adult specimen; it was procured in the winter of 1906.

239. (240) **Mergus albellus** L. The Smew.

Local name: *Baghal tas-serra.*

Wright, in his general list, gives this species on the authority of Schembri, who says that it is not very common in these islands and generally appears during the winter months. In his first appendix, however, he states that, in January 1864, a number of these birds were driven on the island by the severity of the weather and he obtained an adult female and several young birds. In his fourth appendix he says that a fine adult male was obtained in the winter of 1868 and also two females. The above-mentioned adult male is still preserved in the University Museum. I have seen only three specimens in the flesh; they were shot at Ghain Tuffiha in the winter of 1910. Of these, two were mounted by me and now form part of my collection, the other was in such a bad condition that I could not manage to set it up.

240. (197) **Phalacrocorax carbo carbo** (L.). The Cormorant.

Local name: *Margun.*

Pretty frequent, especially during the winter, when a pair or more often establish themselves in our harbours; individuals are at times observed also during the spring and autumn and occasionally during the summer.

241. **Phalacrocorax carbo subcormoranus** Brehm. The Lesser Cormorant.

Local name: *Margun second.*

This form is perhaps as frequent as the preceding. Of the two Cormorants in my collection one certainly belongs to it. The local name which I have given to it is the equivalent of the English.

242. **Phalacrocorax graculus graculus** (L.). The Shag.

The Shag has been reported for Malta by Mackay in his "Ornithological Notes from Malta," published in the 'Zoologist' of 1899, where he states that he handled one shot on the shore at Fort Manoel on the 12th of November, 1897; but as Mackay's notes are not always to be relied on, I give the present occurrence as one in need of further evidence.

243. (198) **Sula bassana** (L.). The Gannet.

Local name: *Sula.*

A very rare and irregular visitor—so much so, in fact, that I have seen only five locally taken specimens: the first was recorded by the late Prof. Tagliaferro in 'Il Naturalista Maltese' of 1892; the second was taken in the vicinity of Casal Dingli and mounted by Mr. Luigi Naudi; the third was taken on a hook in Marsascirocco harbour and presented to Mr. Degaetani; the fourth was shot in the same locality in October 1912 and now forms part of my collection; the last was shot on Gozo, and was mounted by the late Mr. Micallef, in 1913.

244. (199) **Pelecanus onocrotalus** L. The Pelican.

Local name: *Pellican.*

A very rare and irregular straggler. Schembri records the capture of two individuals—one taken by Signor Ellul in 1832, and the other on the 12th of November, 1841.

Wright says that a great many were driven on to the island during a violent gale from the north-east in 1848, and many were shot at Sliema, St. Julian's, and other places on the north coast; besides, he records one shot at Marsascirocco in July 1859, also several others, of which two or three were killed, in October and November 1861; one seen at the Marsa on the 10th of June, 1865, and another which seems to have been shot in Gozo and seen by him at the market on the 27th of October, 1872. There are two specimens in the University Museum; these bear neither date nor locality, though they might be two of those mentioned by Wright. Another specimen is in the collection of Mr. A. Cachia Zammit; this was shot at San Giorgio a Mare many years ago. Besides the local name given, in several lists we also find the name "*Sassla*," but this has fallen into disuse.

245. (328) **Hydrobates pelagicus** (L.). The Storm-Petrel.

Local name: *Cangiu ta Filfla.*

A pretty common and resident species, which breeds especially on the islet of Filfla. It was described as a distinct species by Schembri under the name *Thalassidroma melitensis*, because some differences which this ornithologist believed to have noticed in the specimens examined by him. Our birds, however, do not differ from those met with in other parts. It is a general belief here that this Petrel is found only on Filfla, and this erroneous statement has been copied in the 'Encyclopedia Britannica.'

246. (330) **Puffinus kuhli kuhli** (Boie). The Mediterranean Shearwater.

Local name: *Ciefa.*

This is also a practically resident and breeding species; it was once most abundant, but a continuous persecution has reduced its numbers so alarmingly that protection has had to be afforded to it. It breeds all along the southern cliffs of the Maltese islands, but Filfla is its chief nesting-station.

247. (329) **Puffinus puffinus yelkouan** (Acerbi). The Levantine Shearwater.

Local name: *Garnia.*

Like the preceding, this is also a resident and breeding species. It was never, however, as common, yet our wanton sportsmen have greatly interfered with its numbers. Though it breeds also on Filfla, it appears to do so more frequently all along the southern coasts of Malta and Gozo. It is also an earlier breeder than its congener.

248. (336) **Podiceps cristatus cristatus** (L.). The Great Crested Grebe.

Local name: *Blongiun prim.*

A fairly common visitor during the autumn; it is generally noticed by the middle of October and remains throughout the winter with us. I have seen it only occasionally during the last days of September. In the spring I have never observed it, though Wright says that it occurs on passage during that season.

249. (337) **Podiceps auritus** (L.). The Slavonian Grebe.

Local name: *Blongiun second.*

Schembri says that young individuals of this species are common here during the winter. Wright states that it is not very common. At present it is assuredly a rare winter visitor—so much so, in fact, that I have met with it only two or three times.

250. (338) **Podiceps nigricollis nigricollis** Brehm. The Black-necked Grebe.

Local name: *Blongiun rar.*

This species is not reported either in Schembri's or Wright's catalogue. The latter, however, mentions the species in the second appendix to his list. I have seen only two specimens taken in the island—one was in Mr. Micallef's collection, the other was shot in Birzebbugia Bay on the 22nd of November, 1909, and now forms part of my collection. The local name was given to the species by the man who brought to me the last-mentioned specimen.

251. (339) **Podiceps fluviatilis fluviatilis** (Tunst.). The Little Grebe.

Local name : *Blongiun terz.*

Schembri says that young individuals of this species are common, but adult ones were never seen by him. According to Wright they are not uncommon about the end of August or beginning of September. From my own observations I can say that these birds are rather irregular in their visits to the islands, and of late they appear to have become remarkably scarce.

252. (335) **Colymbus stellatus** Pontoppidan. The Red-throated Diver.

Local name : *Bughaddasmtal maltemp.*

According to Schembri this species is very rarely seen during the winter, and he records two individuals seen by him in 1839 and 1841. Wright states that Dr. Gulia informed him of four specimens shot in Gozo by M. Barthélemy, of Marseilles, in the winter of 1858–9. I have a specimen in my collection which was taken in the winter of 1910. Both Schembri and Wright call this bird by the Maltese name, *Blongiun.* I think, however, that the one given, which I have taken from some sportsmen who saw the specimen in my collection, suits the species much better.

253. (243) **Columba palumbus palumbus** L. The Wood-Pigeon.

Local name : *Tudun.*

Schembri gives the species as occurring on passage in April, May, and September, without stating its frequency. According to Wright, it occurs also during those months and in November, but never in any great numbers. I consider it by no means common, solitary individuals occurring at times during the autumn and spring. The local name "*Tudun*" is given by some sportsmen to the following species as well.

254. (242) **Columba œnas** L. The Stock-Dove.

Local name: *Hamiema taz-zebbug.*

Occurs on passage during the spring and autumn, but appears to be more frequent during the latter season, though in neither is it to be considered a common bird. I have only a female in my collection, and have not yet succeeded in obtaining a male, though I have tried my best.

255. (241) **Columba livia livia** Gm. The Rock-Dove.

Local name: *Hamiema tal gebel.*

A resident and breeding species, which has been so persistently persecuted that, if it is not entirely exterminated, it has assuredly become very scarce—so much so, in fact, that I have not yet obtained one for my collection. According to Wright, it is also found on Filfla; there can be no doubt, however, that at present not a single individual of the species is to be found there. Along the southern coasts of the islands there are some Pigeons which breed in the crevices of the precipitous cliffs, but these are only escaped specimens of the various breeds of domestic Pigeons, which are also known locally by the name *Hamiema tal gebel.*

256. (244) **Streptopelia turtur turtur** (L.). The Turtle-Dove.

Local name: *Gamiema.*

Occurs on passage during both seasons, but is seen in great numbers only during the spring, when many are taken by the gun and in the clap-nets.

257. (245) **Pterocles arenarius** (Pall.). Black-bellied Sand-Grouse.

Local name: *Ganga ta Spanja.*

Of this species we have only two records: the first was a specimen taken in Gozo on the 9th of December, 1911, and now in Mr. Saliba's collection; the second one was also taken in that island, on the 11th of April, 1916, and now forms part of my collection. The local name apparently has existed since the capture of the first specimen—in fact, I came to know of the bird by that name.

258. (246) **Pterocles alchata** (L.). Pintail Sand-Grouse.

Local name: *Ganga.*

Schembri records the capture of several of these birds at Marsascirocco, Marsa, and Comino in April 1843. I have seen a specimen in Mr. Micallef's collection which was taken in 1896, and I handled one in the flesh which was shot in the neighbourhood of Zurrico in the summer of 1908; on several occasions recently these birds have been imported, so that I cannot take into account the three specimens which were obtained in that year.

259. (278) **Hæmatopus ostralegus ostralegus** L. The Oyster-catcher.

Local name: *Gallina tal bahar.*

A quite accidental visitor. Recorded by Schembri, who saw a specimen on the 11th of August, 1841, and two others in September and October of the following year. Wright states that these birds have been observed in April, August, September, October, and November, and records one seen on the 17th of April, 1854; another was killed in the summer of 1860, and a third on the 1st of April, 1861. I have not seen more than half a dozen individuals, all of which occurred during the summer months. The local name given by Schembri and several others is *Cavalier*; this, however, appears to have fallen into disuse, at least for the Oyster-catcher, though several people use it for the Black-winged Stilt.

260. (262) **Burhinus œdicnemus œdicnemus** (L.). The Stone-Curlew.

Local name: *Tellerita.*

Common during both seasons, and sometimes occurring in considerable numbers during the autumnal period of migration. It appears that the few individuals which arrive in the spring, if fortunate enough to escape the guns of our sportsmen, remain here to breed and do not depart before the middle of summer.

261. (264) Cursorius gallicus gallicus (Gm.). The Cream-coloured Courser.

Local name: *Nanchina.*

This is generally considered a species of rare and irregular occurrence in these islands. Of late years it appears to have become more frequent. I have seen individuals taken during almost every month of the year. Wright says that it is known locally by the name *Pluviera ta l'Inghilterra*, but this name is no longer in use, and all our sportsmen know it by that given above.

262. (263) Glareola pratincola pratincola (L.). The Pratincole.

Local name: *Perniciotta.*

In Schembri's time the Pratincole seems to have been common during its migrations in March and September; and Wright says that it is an annual visitor in March, April, May, August, and September, and that during some years it is common. At present it must be considered as a mere straggler, and I remember several years when not a single specimen could be seen.

263. (272) Charadrius morinellus L. The Dotterel.

Local name: *Birwina.*

A regular bird of passage, the Dotterel is generally seen towards the end of summer, though the bulk of the birds, however, are only with us late in the autumn; during the winter we often have new arrivals, and sometimes these are also noticed towards the beginning of spring. Besides the local name above given, the species is also known by the name of *Seconda* or *Mezza Pluviera*, this last being used more commonly in Gozo; the name *Birwina* is without doubt in more common use.

264. (268) Charadrius asiaticus Pall. The Caspian Plover.

Local name: *Birwina seconda.*

On the 26th of March, 1911, I found a specimen in the Valletta Market; it was shot at the Marsa two days before; this individual is an immature specimen, and it now forms part of my private collection. The local name is the one used by the dealer from whom I bought the specimen.

265. (270) **Charadrius hiaticula hiaticula** L. The Ringed Plover.

Local name: *Monachella prima.*

Both Schembri and Wright say that this species is common during spring and autumn. I have met with only two specimens; these were taken during the spring, and both were presented to me as birds of unusual occurrence, so that I am quite justified in considering the species rare.

266. (271) **Charadrius dubius** Scop. The Little Ringed Plover.

Local name: *Monachella.*

Fairly common during both passage-seasons, but especially during the spring. Schembri compares its frequency to that of the foregoing species, from which it seems that, in his times, the Ringed Plover was common too.

267. (269) **Charadrius alexandrinus alexandrinus** L. The Kentish Plover.

Local name: *Monachella ingliza.*

No mention is made by Schembri of this species. Wright, however, records several specimens shot by him in 1853. I have seen only two specimens, but in spite of this I feel inclined to share Wright's opinion, that owing to its likeness to *C. dubius* this species might very easily be overlooked.

268. (265) **Charadrius apicarius** L. The Golden Plover.

Local name: *Pluviera.*

This Plover visits us regularly during the autumn, and is to be met with throughout the winter; during some years it occurs in considerable numbers, and a good many are taken. On the approach of spring the greater part leaves us. I have met with it only once in the full plumage, and the specimen was looked upon by all who saw it as belonging to some species hitherto unknown here.

269. (266) Charadrius dominicus fulvus Gm. The Asiatic Golden Plover.

Local name: *Pluviera seconda.*

This species is undoubtedly rare, but might also be very easily overlooked. It is not included in Schembri's catalogue. Wright records it both in his list of 1864 and in one of his appendices. I have found it twice in the Valletta Market, and poulterers assured me that these birds are not so rare as I thought them to be. The local name is the equivalent of the English "Lesser Golden Plover."

270. (267) Squatarola squatarola (L.). The Grey Plover.

Local name: *Pluviera pastarda.*

Met with during the spring and autumn, and sometimes during the winter too; it is usually, however, very scarce, though I remember years when it arrived in fairly good numbers, and this was always during the spring.

271. (273) Hoplopterus spinosus (L.). The Spur-winged Plover.

Local name: *Pluviera bli xprun.*

In the third appendix to his list, Wright records the capture of a specimen in October 1865. It was in company with another individual which escaped; the specimen was secured by Wright for his collection. The name given has been suggested by Mr. Jos. Zammit, and it is practically a translation of both the Latin and English names.

272. (274) Chettusia gregaria (Pall.). The Sociable Plover.

Local name: *Pluviera ingliza.*

I have seen a wounded individual which lived for some time in the possession of the late Rt. Rev. Monsgr. Marmarà; it was shot by a man from Binghisa, who assured me that the species was not new to him—he called the bird by the local name "*Biruina prima.*" Blasius reports the species in his catalogue for the sole reason that Giglioli gives the local name which I have mentioned above. Schembri also gives the species, but, according to Wright, it should be omitted from the list of our birds.

273. (275) **Chettusia leucura** (Licht.). The White-tailed Plover.

Local name: *Venewwa denba abjad.*

Wright records a specimen met with by him in the Valletta Market on the 18th of October, 1864, and another shot on some marshy ground at the head of the Grand Harbour on the 24th of October, 1869. The local name, which was suggested by the Hon. Dr. Magro, is only an equivalent of the Latin.

274. (276) **Vanellus vanellus** (L.). The Lapwing.

Local name: *Venewwa.*

Common during the autumn and winter, usually remaining with us till the beginning of spring. Large flocks are often observed arriving during very cold days towards the approach of winter. Wright records some shot as late as the 14th of April, and I have seen one taken during the first week of May.

275. (277) **Arenaria interpres interpres** (L.). The Turnstone.

Local name: *Monachella imperiali.*

Schembri says that a few individuals occur almost annually, and he records a plentiful passage during the spring of 1840. Wright says that the species is rather irregular and somewhat rare, occurring generally in May, August, and September, but he states that he has shot it also in December. It is undoubtedly of rare occurrence—so much so, in fact, that I have not seen more than six or seven in all.

276. (294) **Bartramia longicauda** (Bechst.). Bartram's Plover.

Local name: *Pluvierott ta denbu.*

Wright records the capture of a specimen on the 17th of November, 1865. The local name was suggested by the Hon. Dr. Magro.

277. (293) **Machetes pugnax** (L.). The Ruff.

Local name: *Ghirwiela.*

Occurring commonly on passage during the spring and autumn, a few being often met with during the winter as well; individuals in the full nuptial dress are of very rare occurrence, and I have not seen more than three.

278. (291) **Canutus canutus** (L.). The Knot.

Local name: *Ghirwiel rar.*

Very rare. Schembri states that he did not see more than two or three individuals; these were taken in January and February in winter dress. Wright records a specimen existing in the University Museum, but neither date nor locality is given. I have not yet succeeded in meeting with the species. Giglioli, besides the local name given, also mentions *Ghirwiel irmiedi.*

279. (292) **Calidris leucophæa** (Pall.). The Sanderling.

Local name: *Pispisella bajda.*

Wright records a specimen shot at Marfa and sent to him by Mr. Horne; he states that he had not met with the species before. I have two specimens in my collection, one of which was shot at Binghisa Point in August 1910; the other was obtained in the Valletta Market in the spring of 1913. In the spring of 1911 I saw a living specimen at the dealer's in St. John's Square, who called the bird by the local name here given.

280. (287) **Erolia alpina alpina** (L.). The Dunlin.

Local name: *Begazzina tat-tizz.*

Both Schembri and Wright state that this species is common during both the spring and autumn. I have met with it also during the winter, but do not consider it common at any time of the year.

281. (290) **Erolia ferruginea** (Brünn.). The Curlew-Sandpiper.

Local name: *Begazzina hamra.*

Occurs on passage towards the end of spring and the beginning of summer, reappearing again in the autumn and at times during the winter as well; it seems to be found in considerable numbers in June. Wright records its occurrence also in July and August. I have never met with it during the latter month.

282. (288) Erolia minuta minuta (Leisl.). The Little Stint.

Local name: *Tertuxa.*

A fairly common species, which is met with practically from the beginning of spring to the middle or end of autumn, but it appears to occur more abundantly from April till June.

283. (289) Erolia temminckii (Leisl.). Temminck's Stint.

Local name: *Tertuxa rara.*

Wright records several specimens obtained by him in various seasons, and Mr. Micallef, who showed me a specimen, informed me that he had mounted several others, which were obtained in September. I have not yet succeeded in securing a specimen for my collection, neither have I seen it on the wing or in the flesh.

284. (301) Tringa hypoleuca L. The Common Sandpiper.

Local name: *Begazzina tar-rocca.*

Pretty common during the spring and autumn, occasionally being met with during the summer. I remember years when, during this season, it occurred in abundance, but this I consider to be quite exceptional. Wright says that a few probably breed here in summer, but I have not been able to confirm this statement.

285. (300) Tringa glareola L. The Wood-Sandpiper.

Local name: *Pespus tal bahar.*

Occurs in pretty good numbers during the spring and autumn, some being met with also during the summer months. I remember several occasions when the species appeared to become scarce in the autumn, and during a whole season I did not observe a single bird. The species is also known by the local name *Pespisella,* though this is often used by many as a generic name.

286. (299) **Tringa ochropus** L. The Green Sandpiper.

Local name: *Swejda.*

Fairly common, occurring in spring, summer, and autumn. Wright says that it is partial to inland situations, but I have never observed this.

287. (295) **Tringa totanus** (L.). The Common Redshank.

Local name: *Pluvierott.*

Common on migration during both seasons; solitary individuals are met with at other times as well. Schembri says it is common also in summer, but I have only observed it towards the end.

288. (296) **Tringa erythropus** (Pall.). The Spotted Redshank.

Local name: *Ciuvett.*

Schembri says this species is not very common, and states that it is more frequently found during the spring, passing also in September; Wright repeats almost the same statement. From my personal experience I should say that these birds are now to be considered as very rare visitors—so much so, in fact, that I have not yet been able to secure a specimen for my collection, nor have I ever observed one on the wing or even in the flesh. There is a specimen in the University Museum which bears no date.

289. (297) **Tringa nebularia** (Gunner). The Greenshank.

Local name: *Cewcewwa prima.*

This species cannot be said to be generally common, though occasionally it appears in fairly good numbers. It is more frequently seen during the spring and autumn, but during the other seasons it has been known to appear. Besides the local name given, we find in Schembri's catalogue *Ruffiana tal caccia,* and in Wright's *Ceuceuua*; this, however, is used indifferently for the present species and the following, the other seems to have fallen into disuse.

290. (298) **Tringa stagnatilis** (Bechst.). The Marsh-Sandpiper.

Local name: *Cewcewwa seconda.*

Occurs on passage, together with the preceding. Wright says it is not very common, and I should say that at present it is undoubtedly very scarce. Schembri appears not to have realized the difference between this and the preceding species.

291. (282) **Phalaropus fulicarius** (L.). The Grey Phalarope.

Local name: *Barusa griza.*

I have never met with this species in Malta. Both Giglioli and Arrigoni degli Oddi, however, state that it has occurred here.

292. (281) **Phalaropus lobatus** (L.). The Red-necked Phalarope.

Local name: *Barusa.*

The only specimen known to have occurred in these islands is one which was shot by Prof. R. Falzon, who noted the occurrence in 'Il Naturalista Maltese' of 1890. The local name was taken by Prof. Tagliaferro from a fisherman, who, on being shown the above-mentioned specimen, stated he had seen a pair of these birds taken from the fish-ponds of Marsascirocco many years ago.

293. (280) **Himantopus himantopus** (L.). The Black-winged Stilt.

Local name: *Fras-servient.*

Schembri calls this species very common, saying that it occurs on passage in March, September, and October. Wright says it is not uncommon in March and April, appearing again in September and October. From my own observations I should say that, though it visits us during both seasons, it is by no means common, and of late years has become undoubtedly rare. Some sportsmen call this bird by the local name "*Cavalier*"; this, however, was once intended for the Oyster-catcher, which is to-day known by another local name.

294. (279) **Recurvirostra avocetta** (L.). The Avocet.

Local name: *Xifa.*

This is one of those rare species which visit us most irregularly. Schembri says that all the specimens seen by him were taken in May. Wright says that the species occurs about that time, but he also records a specimen shot out of a party of three on the 7th of November, 1860. I have seen one in midsummer, and the late Mr. Micallef mounted a specimen killed in the first week of January 1906.

295. (202) **Limosa lapponica lapponica** (L.). The Bar-tailed Godwit.

Local name: *Ghirwiel prim rar.*

Wright records a specimen taken by Mr. W. J. Ross on the 22nd of September, 1843, and he says that he is indebted for this information to Dr. Leith Adams, who told him also that the specimen is in the Derby Museum at Liverpool.

296. (203) **Limosa limosa** (L.). The Black-tailed Godwit.

Local name: *Ghirwiel prim.*

According to Schembri this species is rather common, occurring on passage in January. Wright says that it is not very common and is to be seen on passage in spring and autumn, being met with also in January and February. I have met with it only during the winter and at the beginning of spring, and consider it one of our scarcer birds.

297. (306) **Numenius arquata arquata** (L.). The Common Curlew.

Local name: *Gurlin.*

Very frequent, but never abundant; it occurs generally from July to September, but is to be met with also during the spring. I have observed a few individuals during the winter, but these must be considered quite exceptional. Besides the local name above given, I have heard it also called "*Gurlin prim.*"

298. (304) **Numenius phæopus phæopus L.** The Whimbrel.

Local name : *Gurlin second.*

Appears to be a casual visitor ; I have met with it only during the winter. I have been informed that it occurs also on passage during the autumn and spring.

299. (305) **Numenius tenuirostris Vieill.** The Slender-billed Curlew.

Local name : *Gurlin terz.*

Occurring fairly commonly, together with its congeners. Both Giglioli and Blasius call this species by the local name *Gurlin second,* while *Gurlin terz* is given by them to the Whimbrel. As Wright justly remarks these two names are often given indiscriminately to both species, although I find that the majority of sportsmen and fowlers call the two species by the names given in this list.

300. (284) **Gallinago media (Lath.).** The Great Snipe.

Local name : *Beccacc ta Mejju.*

Schembri says that this species is common during May, and Wright that it is not uncommon in April and May, occasionally occurring also earlier, but he states that he never heard of it being observed during the autumn and winter. I, too, have met with the species only during the spring, and it is undoubtedly more frequently met with in May.

301. (285) **Gallinago gallinago gallinago (L.).** The Common Snipe.

Local name : *Beccacc.*

Occurring during the spring and autumn, but is never observed in any great numbers in the former season. It usually appears by the middle of February, specimens being often met with all through the month of May ; in autumn it is generally seen by the end of September, remaining with us for the whole of November, a few lingering here throughout December.

302. (286) **Limnocryptes gallinula (L.).** The Jack-Snipe.

Local name : *Cinconja.*

Occurring together with the preceding, and generally still more common. Very often individuals linger here throughout the winter—in fact, I have seen specimens taken almost continually throughout that season. It generally departs a little before the Common Snipe in the spring.

303. (283) **Scolopax rusticola L.** The Woodcock.

Local name: *Gallina.*

This species occurs regularly during the autumn, but is generally considered scarce. The first arrivals are usually observed by the first week of October. The birds continue to be taken throughout November, and a few individuals winter also with us. I have seen specimens shot in March and September, and on one occasion saw one taken in August.

304. (307) **Hydrochelidon nigra nigra (L.).** The Black Tern.

Local name: *Cirlewwa seuda.*

Schembri considers this species common, saying that it occurs from September onwards. Wright states that it is occasionally seen in August; he records a specimen shot by him from a flock of three on Fort Manoel on the 23rd of July, 1859. In the fifth appendix to his list he mentions a large number which visited our harbour in July 1870, and which remained here until the end of September. From my own observations I should say that the species is met with only occasionally—in fact, I have not seen more than two or three specimens, and have not yet succeeded in securing one.

305. (309) **Hydrochelidon leucopareia leucopareia (Temm.).** The Whiskered Tern.

Local name: *Cirlewwa bil mustacci.*

Schembri says that, although this species is not common, individuals are taken during the summer almost every year. Wright, who considers it uncommon, states that it visits us in spring, summer, and autumn; he records a specimen in his collection shot on the 16th of May, 1860, and, in the second appendix to his list, mentions others obtained in the third week of May, 1865.

306. (308) **Hydrochelidon leucoptera** (Temm.). The White-winged Black Tern.

Local name: *Cirlewwa tar-rebbigha.*

This species occurs on passage during both seasons, but seems to be more common during the spring. I have seen individuals also during the summer, but consider such occurrences as unquestionably rare. The local name was given to me by Mr. Micallef, who stated that he had known the species always by that name.

307. (314) **Sterna anglica anglica** Mont. Gull-billed Tern.

Local name: *Cirlewwa tal' Inghilterra.*

The first mention of this species in Malta was made by Wright, who, in the second appendix to his list, records three specimens in the adult breeding-plumage killed in May 1864. I have seen a specimen mounted by Mr. G. Debono, of Musta, and shot by him in the spring, and have one in my collection presented to me by the same gentleman, who shot it at the Salina on the 16th of April, 1914.

308. (313) **Sterna caspia** Pall. The Caspian Tern.

Local name: *Cirlewwa prima.*

In the fourth appendix to his list Wright records a specimen shot by him near Fort Manoel on the 21st of May, 1869, and states that he had been informed of the capture of another at the same time. I have seen three specimens in Mr. Micallef's collection; these were shot at the Salina in the spring of 1901. Giglioli gives "*Cirlewwa*" as the local name for this species; but this is only a generic name.

309. (312) **Sterna sandvicensis sandvicensis** Lath. The Sandwich Tern.

Local name: *Cirlewwa hamra.*

Schembri says that flocks of these birds are seen here annually at the approach of winter. According to Wright, a few are at times noticed during both autumn and winter.

I have never seen a specimen either on the wing or in the flesh. I know, however, of the existence of a mounted specimen in the possession of Mr. Micallef, from whom I obtained the local name.

310. (311) **Sterna dougallii dougallii** Mont. The Roseate Tern.

Local name: *Cirlewwa rosa.*

In the winter of 1912 Mr. Micallef asked me to identify three of these birds which he called by the local name given above; these were shot at the fish-ponds of Marsascirocco. I have also been informed that another specimen was lately taken at the Salina, but this I have not seen.

311. (310) **Sterna hirundo** L. The Common Tern.

Local name: *Huttafa tal bahar.*

Schembri considers these birds rather rare, and says that they occur towards the end of summer and at the beginning of autumn. Wright states that a few are seen in the spring, autumn, and winter. I consider the species rare and generally occurring late in the summer. I have, however, a specimen in my collection which was given to me by Mr. R. Smith, who shot it on the 24th of May, 1913. In many lists the simple generic name *Cirlewwa* is given to this species, but I prefer the one given above, which I have obtained from several sportsmen and fishermen.

312. (315) **Sterna minuta minuta** L. The Little Tern.

Local name: *Cirlewwa sghira.*

In Schembri's list this species is given on the authority of others. Wright records a specimen shot by Mr. Medlycott, and a pair seen by himself at St. Paul's Bay in August 1855. I have seen two mounted specimens in Mr. Micallef's collection, and came across one in the flesh in the market in the spring of 1909; this was in such an advanced state of decomposition that it could not be preserved.

313. (320) **Larus minutus** Pall. The Little Gull.

Local name: *Gawwja zghira.*

Schembri considered this species rather common, stating that it occurs here from September to November. Wright, too, says that it is common in some years, and states that in a few hours he succeeded in shooting as many as nine or ten, while he could have shot more. At present the species is unquestionably of very rare occurrence—in fact, I have not yet succeeded in observing a single example.

314. (317) **Larus ridibundus** L. The Black-headed Gull.

Local name: *Gawwja rasha sewda seconda.*

Schembri says that this species is common during the winter, and Wright states that it associates with *L. melanocephalus*, but is by no means so common. I have been assured by many that it is met with annually during the winter. But I must confess that though I have looked for it most carefully, I have not yet succeeded in detecting it.

315. (318) **Larus melanocephalus** Temm. The Mediterranean Black-headed Gull.

Local name: *Gawwja rasha sewda.*

This is the common Gull of Malta. It is to be seen in pretty large numbers in our harbours. The local name appears in Giglioli's avifauna, and, although this indicates the black head of the species, I have very rarely met with it when it has assumed that dress.

316. (319) **Larus ichthyaëtus** Pall. The Great Black-headed Gull.

Local name: *Gawwja imperiali.*

Giglioli says that Wright included this species amongst the Birds of Malta on the authority of Tristram, but there were doubts about its occurrence, for the specimen could not be traced. On the 11th of March, 1909, I saw a specimen which Mr. Micallef asked me to identify; it was taken on a hook by some fishermen who were a little to the south of Binghisa reef. The local name was given to the species by Mr. Micallef.

317. (321) **Larus canus canus** L. The Common Gull.

Local name: *Gawwja tas-sigiar.*

This species is, according to Schembri, common here in autumn and winter. Wright repeats Schembri's statement, and mentions a specimen in the University Museum in the fifth appendix to his list; he says that he possesses a specimen taken on the 18th of December, 1865. I have not yet succeeded in seeing the bird. I have been assured, however, by Mr. Micallef that an example was shot by him in the vicinity of Gargur, and that he called it by the local name (which means Tree-Gull), because he saw the individual alighting several times on the carob-trees.

318. (324) **Larus argentatus cachinnans** Pall. The Yellow-legged Herring-Gull.

Local name: *Gawwja prima.*

This species, which is frequently seen in our harbours during the winter, is one of our breeding birds. It has been reported by both Schembri and Wright as *Larus argentatus*, but from their notes it appears quite evident that they alluded to the present form.

319. (325) **Larus fuscus fuscus** L. The Lesser Black-backed Gull.

Local name: *Gawwja seconda.*

Schembri considers this species common during the winter, and Wright states that it is rather rare; he also records some specimens seen by him, and a pair shot by Mr. Medlycott and Lieut. Sperling, R.N. From my own observations I cannot call it common, for although single specimens are to be seen mingled with the other Gulls during the winter, I also know of several seasons when not a single individual could be observed.

320. (322) **Larus gelastes** Thienem. The Slender-billed Gull.

Local name : *Gawwja rosa.*

Wright states that he believed he had seen this species several times flying about the harbour, but he never succeeded in shooting one; he also mentioned two locally-taken specimens in the University Museum. The local name I obtained from Mr. Micallef, who mounted a specimen shot in the Marsamuscetto Harbour about twenty-five years ago.

321. (323) **Larus audouini** Payr. Audouin's Gull.

Local name : *Gawwja ghedduma ahmar.*

Reported by Wright, who was informed by Tristram that the species had been observed by him in Malta. I, too, have been informed by Mr. Micallef that he handled a specimen some years ago, and he called it by the local name.

322. (316) **Rissa tridactyla tridactyla** (L.). The Kittiwake.

Local name : *Gawwja tal' Inghilterra.*

Schembri records a specimen taken from the Grand Harbour in 1843, and Wright another shot by Mr. Medlycott in Marsamuscetto Harbour on the 22nd of February, 1873.

323. (327) **Stercorarius pomarinus** (Temm.). The Pomatorhine Skua.

Local name : *Ciefa ta denba.*

Schembri includes the species in his catalogue on account of a specimen which was brought to him from a distance of twenty miles to the north of Malta, and Wright in his fifth appendix to the list of Maltese birds says that the specimen reported by him as *S. catarrhactes*, which was shot at the Salina in 1860, was really *S. pomatorhinus.* I, too, have fallen into a mistake by including *S. catarrhactes* in my list of 1915, being unaware at the time of the correction made by Wright in 1874.

324. (321) **Alca torda L.** The Razorbill.

Local name : *Mustal bahar.*

Wright in his fifth appendix says that he had the opportunity of examining the specimen taken many years before, which gave rise to the admittance of the Guillemot into the list of Maltese birds, and this turned out to be a young Razorbill. The species is undoubtedly of casual and rare occurrence, though we have some records when it has visited us in relatively large numbers. Mr. Micallef, for instance, once obtained thirty-four specimens during a single season. I have two in my collection ; one is a young of the year, which I picked up in the Valletta Market on the 3rd of January, 1912 ; the other, which is an adult in full plumage, was taken on a hook at a distance of two or three miles to the north of Gozo on the 12th of June of the same year. The local name was given to the species by the late Prof. Tagliaferro. Owing to a misprint, it appears in my list of 1915 as *Tus,* which was evidently intended for *Mus*, meaning "knife."

325. (332) **Uria troille troille (L.).** The Common Guillemot.

Local name : *Bughaddas rar.*

I remember seeing a mounted specimen when I was quite a boy, and I remember too that the bird was said to have been taken alive from the Grand Harbour in a very severe winter. The local name I heard from the possessor of the specimen in question. My friend Mr. L. Cachia Zammit assures me that about ten or twelve years ago these birds visited us in fairly large numbers, and he shot six or seven of them. On the 17th of January, 1911, I met with a specimen in the Valletta Market ; this was taken at Bahan ic-ciaghac the day before. It is now in my private collection.

326. (333) **Alle alle (L.).** The Little Auk.

Local name : *Blongiun tat-tempesti.*

On the 27th of January, 1912, I procured a specimen which was exposed for sale in the Valletta Market; it was taken alive at the Salina the day before. On the day following, the same poulterer presented to me another specimen which he said was picked up dead at the same locality. Both are now in my collection. The local name is the one which was used by the man from whom I bought the birds.

327. (334) **Fratercula arctica arctica** (L.). The Puffin.

Local name: *Purcinella tal bahar.*

Schembri records the capture of a specimen by Sig. Baldassare Ellul in November 1832, and Wright simply repeats Schembri's statement. I have seen more than ten specimens taken in these islands, and have also a pair in my collection which I procured from the market. The first, which is an adult in full plumage, was taken at the Salina on the 10th of January, 1910; the second, an immature specimen, at Marsascirocco on the 4th of January, 1915.

328. (259) **Otis tarda tarda** L. The Great Bustard.

Local name: *Pitarrun.*

Schembri records the occurrence of several individuals during a north-westerly gale in 1835, and a specimen shot at Marfa by the Governor, Major-General Sir Frederic Cavendish Ponsonby. This, he says, was preserved in the Public Library. Wright calls the species rare, and states that every two or three years one of these birds is shot—chiefly in Gozo; he also records the capture of five individuals. I have seen a pair which were taken on the 17th of October, 1899. There is a specimen in the University Museum. This is probably the one which was shot by the Governor at Marfa. It is, unfortunately, at present in a miserable state.

329. (260) **Otis tetrax** L. The Little Bustard.

Local name: *Pitarra.*

Schembri says that this species is as rare as the preceding, and records some individuals also taken by Governor Ponsonby. Wright does not consider it as rare as its larger congener, and records one shot in October 1862. I have seen two or three mounted specimens, and handled two in the flesh: of these, one is in Col. Francia's collection, the other is in mine; both of them were shot during the spring, in which season they seem more frequently to occur.

330. (261) **Chlamydotis undulata undulata** Jacq. The Houbara Bustard.

Local name: *Ghubara.*

Schembri records an individual met with on Corradino hill by Signor G. Borg Madiona in 1841. There is a mounted specimen in the University Museum which is said to have been obtained by Mr. W. Grant from Gozo in 1866. I saw a live specimen in a shop at Marsa in the spring of 1910. I am afraid, however, that this was an imported bird, though people pretended that it was taken locally in a net.

331. (257) **Megalornis grus grus** (L.). The Common Crane.

Local name: *Grawwa.*

According to Schembri, a few of these birds appear almost annually at the approach of winter. Wright says that a few appear also annually during the spring and autumn, and occasionally during the winter. He records a specimen shot on the 13th of December, 1866, and another in March of the following year. I consider the species of almost annual occurrence, but generally rare. I have met with it at almost all seasons; it is, however, more frequently seen during the spring and autumn. In one day of November 1912 I observed these birds passing in thousands, when a good number of them were killed. Besides the Maltese name, the species is also known locally as *Airm.* As this is, however, also given to the Common and Purple Herons, I prefer the one which I have used—besides, this is also the one commonly met with.

332. (258) **Anthropoides virgo** (L.). The Demoiselle Crane.

Local name: *Damigella.*

According to Schembri, these fine Cranes occur in our islands every now and then, and he also records one killed by Governor Ponsonby and another taken on Corradino, but he does not give the date. Wright states that only two or three specimens are on record, the last being that killed in March 1861. I have never seen this Crane on the wing or in the flesh, but have seen a mounted specimen in Mr. Micallef's establishment, which was taken in these islands a few years ago.

333. (253) **Crex crex** (L.). The Land-Rail.

Local name: *Gallozz.*

A common species during both seasons, more abundant, however, during the spring. Schembri states that these birds arrive a little before the Quails during both passage seasons.

334. (250) **Porzana porzana** (L.). The Spotted Crake.

Local name: *Gallozz second.*

Occurs on passage together with the preceding. It is also generally common, though I remember various seasons when it was very scarce. It is usually most plentiful in March and April.

335. (252) **Porzana parva** (Scop.). The Little Crake.

Local name: *Gallozz terz.*

According to Schembri, during the autumn only few of these birds are seen; in the spring, however, they occur in good numbers. Wright repeats practically the same statement, and adds that they are often met with in low humid localities at the head of the Grand Harbour. At present the species is unquestionably rare—so much so, in fact, that I have only obtained one specimen.

336. (251) **Porzana pusilla intermedia** (Herm.). Baillon's Crake.

Local name: *Gallozz rar.*

No mention is made of this species by Schembri. Wright says that it is probably commoner than it is generally considered to be; he also records several specimens taken in the islands. From my own experience I consider it rare and of occasional occurrence, and I have only met with it three or four times.

337. (249) **Rallus aquaticus aquaticus L.** The Water-Rail.

Local name : *Gallozz tax-xitua.*

Schembri says that the species is common, and is met with usually in the winter. Wright says that it is not very common in spring and autumn, some remaining through the winter months. I consider it as a scarce migrant during both seasons, and during the winter I have only once met with it.

338. (254) **Gallinula chloropus chloropus (L.).** The Moor-Hen.

Local name : *Gallozz tal Germania.*

A common migrant during both seasons. I have often met with a dozen or more in a single day at the Valletta Market, especially in April and May.

339. (255) **Fulica atra atra L.** The Coot.

Local name : *Tigiegia tal bahar.*

Schembri says that this species is common along our shores in August and September. According to Wright, it is common in spring and autumn, but more particularly in the latter season. I have met with it frequently enough during both seasons, but cannot say that it is more abundant in one season or in the other.

340. (256) **Fulica cristata Gmel.** Crested Coot.

Local name : *Tigiegia tal bahar tat toppu.*

Wright records a specimen killed by him in May 1859, and says that Dr. Gulia informed him of three others killed at Marsascala in February 1860 ; besides these, two or three other individuals have been taken, but I have never met with the species myself. The local name given by Giglioli is *Tiegiegia tal bahar prima.*

341. (248) **Coturnix coturnix coturnix** (L.). The Quail.

Local name; *Summiena.*

Though still common, this species is by no means so abundant as it used to be. It occurs on passage during both seasons. Some of those which arrive in autumn generally pass the winter with us. Schembri says that the Quail breeds here in May, and Wright says that it breeds in March. I have seen eggs as early as the first days of the latter month, and have met with others still unhatched in June.

XXVII.—*Birds in the Ancre Valley during the Winter of* 1916–1917. By Lieutenant J. N. KENNEDY, M.C., R.G.A., F.R.G.S., M.B.O.U.

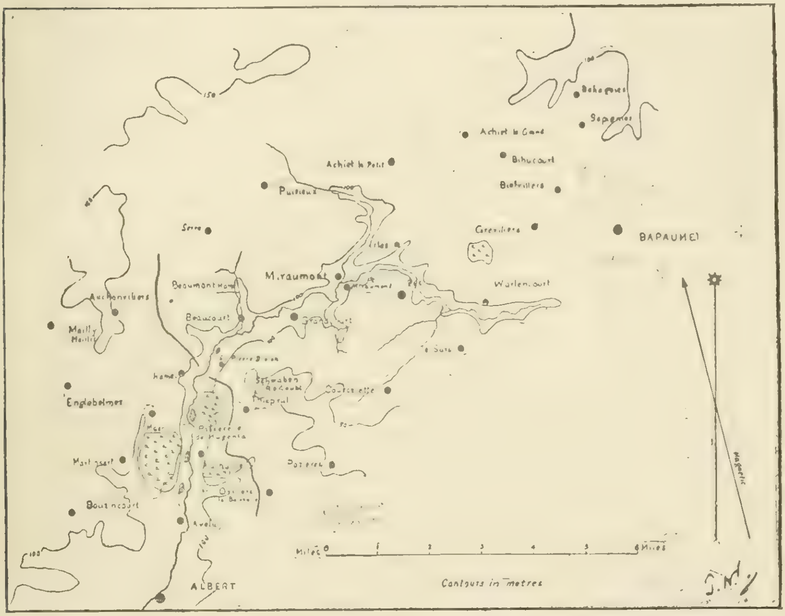
(Text-figure 4.)

THE river Ancre is a tributary of the Somme, rising in the Bapaume plateau and finding its way down the southern slopes of the watershed through a long irregular valley, the general trend of which is south-west and south. The chalk country which it drains is of a gently undulating and open nature with few high hills, and rises but seldom more than 500 feet above sea-level. Above Miraumont the Ancre is little more than a ditch which is usually dry except after heavy rain. Below this village it enters a deeper valley and, flowing between the Puisieux and Courcelette ridges, it increases rapidly in volume. Below Grandcourt there is on either bank a belt of marshy ground which widens considerably between St. Pierre Divion and Aveluy, and there are here stretches of deep open water and extensive reed-beds interspersed with trees.

It was in this marshy tract that birds were most numerous, in spite of the fact that it received many of the shells intended for neighbouring roads. We were able to explore it in a punt constructed by stretching a canvas trench-cover over a rough wooden frame.

As I have already mentioned, the country in general is of a very open nature, there being few hedges and trees except in the villages. Aveluy Wood, which is about one square mile in extent, was disappointing from an ornithological point of view, although comparatively free from shelling. Thiepval Wood is no longer worthy of the name, being a mere collection of blasted and broken stumps.

Text-figure 4.


150
Achiet le Petit
Puisieux
Serre
Achiet le Grand
Behagnies
Sapignies
Bihucourt
Biefvillers
Grevillers
BAPAUME
Irles
Miraumont
Beaumont Hamel
Auchonvillers
Mailly Maillet
Beaucourt
Grandcourt
Warlencourt
Le Sars
Hamel
Englebelmer
Schwaben Redoubt
Thiepval
Courcelette
Martinsart
Pozieres
Bouzincourt
Aveluy
ALBERT
100
Miles 0 1 2 3 4 5 6 Miles
Contours in metres
Magnetic

Sketch-map of the valley of the Ancre. The position of the German front line in September 1916 is shown in the heavy dark line.

The notes from which this paper has been written were made before and during our advance up the valley of the Ancre between the beginning of October 1916 and the end of March 1917. The sixty-pounder battery to which I then belonged was in position successively near Martinsart, Hamel, St. Pierre Divion, Grandcourt, Miraumont, Bihucourt, and Behagnies. Between St. Pierre Divion and Miraumont the countryside had been wrecked by our guns during the heavy fighting, the villages being levelled, the trees shattered, and the ground itself so torn up by shells that there scarcely remained a single blade of grass. Leaving this belt of desolation behind when the enemy began his retreat, we emerged at Irles into clean country once more, and on the Bapaume plateau the avifauna was comparatively normal.

It is not open to doubt that the fighting which took place here had the effect of banishing many species which should ordinarily have been encountered. Many statements have been made on this subject which might lead one to believe that the birds were absolutely unaffected by war conditions. This I admit was the case before July 1916, and is still true of quiet parts of the line. Until the fall of Beaumont-Hamel, bird-life, so far as an observer previously unacquainted with the region can judge, was almost normal in the artillery area and up to within a short distance of the trenches, especially in the marshes near the river, where many shy species, such as the Water-Rail and Little Grebe, were found right up to the front line. After the beginning of our advance, birds were very scarce where the fighting had taken place. Kestrels were most tenacious of their hunting-grounds, and an individual of this species might often be seen over the trenches even during operations. After the Kestrels, the Carrion Crows, Magpies, House-Sparrows, Skylarks, and Partridges were usually the first to return.

The winter was colder and wetter than usual on the whole, and, during January and February, there was a period of over three weeks continuous hard frost which reduced the birds, especially the waterfowl, to great distress. During this spell of hard weather there appeared several species which had not been previously observed, among them the Tufted Duck, Goldeneye, Great Grey Shrike, and Black Redstart.

Corvus corone. Carrion Crow.

During the winter the Carrion Crow was frequently met with. Some half dozen of these birds haunted the Ancre marshes below Thiepval when the front line was 2000 yards distant. In the daytime they sallied forth to the shell-torn muddy slopes south of the river, venturing as far as the support trenches when things were quiet. I have also observed them further back fluttering over partridge snares set by some French gunners. They were much in evidence at Grandcourt shortly after that village was taken. When we had left the shelled zone behind, they were much rarer.

Corvus cornix. Hooded Crow.

This species was only twice observed in the firing zone: once on 29 December, when one flew over our battery position near Hamel, and again on 19 January, when two were seen near the Passerelle de Magenta.

Corvus frugilegus. Rook.

The Rook was very common, and frequented the fields round Martinsart, Englebelmer, and Aveluy Wood. It was most numerous in early November, when flocks consisting of several hundreds of birds were seen. I have never noticed them in the vicinity of the trenches except on 7 February, when a company was observed, during a spell of hard frost, feeding on biscuits and other fragments of food lying about the old front-line system near Beaumont-Hamel. They were again met with in considerable numbers near Behagnies.

Pica pica. Magpie.

The Magpie is remarkably numerous in the Ancre valley, and individuals were always to be found quite close to the front line wherever a few trees were left standing. There were several of these birds in Grandcourt and Petit Miraumont on the day after they fell into our hands. Near Behagnies on 28 March I counted fifty perching on one tree.

On 30 October, near Mailly-Maillet, I saw a Magpie fly up to a crater made by a shell a few seconds previously, and begin to feed on the grubs among the freshly scattered earth.

Garrulus glandarius. Continental Jay.

By no means common. I saw one on 31 December near the Passerelle de Magenta, and, during February, occasional examples in Aveluy Wood.

Sturnus vulgaris. Starling.

Very common, but seldom seen near the trenches except for flocks passing overhead. Many hundreds of these birds frequented the fields round our battery position at Martinsart in November. Exceptionally large numbers were again encountered near Bapaume in March.

Chloris chloris. Greenfinch.

Occasional small companies were seen near Englebelmer, well behind the firing line, in November, and again near Behagnies in March.

Carduelis carduelis. Continental Goldfinch.

Rather uncommon. On 22 October two were singing in a tree near our observation-post at Auchonvillers. A few were seen near Hamel in December, and, during the cold weather in January, several frequented the marshes below Authuille.

Passer domesticus. House-Sparrow.

Very common. This was always one of the first species to return to captured villages. A few lived in Hamel when our front line ran along the outskirts of the village.

Passer montanus. Tree-Sparrow.

The Tree-Sparrow was so numerous in November, in the vicinity of Englebelmer, as to outnumber the House-Sparrow. They were but rarely seen during December and January. In March they were plentiful around Behagnies, usually in companies of from ten to twenty.

Fringilla cœlebs. Chaffinch.

Common. Flocks of about twenty birds frequented the fields near Englebelmer and Martinsart in November and December. On 21 December a flock of fifty was seen close to the river at St. Pierre Divion, and in January large numbers of females assembled in the marshes near Authuille.

Fringilla montifringilla. Brambling.

During the cold weather, on 20 January, four were seen in the marsh below Authuille.

Acanthus cannabina. Linnet.

During October large flocks of fifty birds frequented the fields near Mailly-Maillet, about one thousand yards behind the trenches. This species was not subsequently met with.

Emberiza citrinella. Yellow Bunting.

The Yellow Bunting was comparatively common near Englebelmer. It was not noticed near the river except during the hard weather in January, when a few came down to the marshes. It was again plentiful near Behagnies.

Emberiza cirlus. Cirl Bunting.

One or two of these Buntings were heard and seen on the outskirts of Mailly-Maillet on 30 October, and again towards the end of March near Behagnies.

Emberiza schœniclus. Reed-Bunting.

I have a record of this species on 22 November, when one was heard in a reed-bed near the Passerelle de Magenta.

Alauda arvensis. Skylark.

The Skylark was common around Englebelmer and Martinsart during the winter. In January, when it was freezing, small companies frequented the Ancre marshes some two thousand yards from the line. On 26 February one was singing over Beaucourt, and again on 14 March one was heard near Grandcourt. It was difficult to understand why these birds remained in this desolate region where the guns had left hardly a blade of grass. On 25 March the Skylarks were in full song near Bapaume despite the exceptionally severe weather.

Galerida cristata. Crested Lark.

During November several small companies were seen near our battery position at Martinsart, and their musical calls were frequently heard in the early mornings.

Motacilla lugubris. Pied Wagtail.

A few frequented the marsh below Authuille during the frosty weather in January.

Motacilla boarula. Grey Wagtail.

Commoner than the Pied Wagtail, and seen in the marshes throughout the winter.

Anthus pratensis. Meadow-Pipit.

This species occurred, but not in great numbers, in the neighbourhood of Martinsart. Small companies came down to the marshes at Hamel during the hard weather in January. On 26 February a few were seen near Beaucourt.

Certhia familiaris (subsp. ?). Tree-Creeper.

Only once encountered in a deserted garden of Authuille on 4 November.

Regulus regulus.

This species was not observed except in December and January, when small companies were seen in Aveluy Wood and among the trees near the river at Hamel.

Parus major. Continental Great Titmouse.

This was the commonest of the Tits. It became very numerous in the marshes near Hamel in January. On the 2nd of November two Great Tits were exploring the broken tree-stumps which are now the only indication of the site of Thiepval. Occasional 77 mm. shells were bursting near the birds, in spite of which they continued their quest unperturbed.

Parus ater. Continental Coal Titmouse.

Not common; occasionally seen near Mailley-Maillet, Hamel, and Authuille.

Parus cæruleus. Continental Blue Titmouse.

Small numbers were met with from time to time.

Ægithalus caudatus roseus. British Long-tailed Tit.

Occasionally seen near the Passerelle de Magenta and in Aveluy Wood.

Lanius excubitor. Great Grey Shrike.

A single example appeared on 28 January near Mesnil and remained for a few days during the hard weather. He allowed me to approach him closely on several occasions before swooping off his perch on a telephone-pole.

Turdus viscivorus. Missel-Thrush.

Several were seen about the end of March in the fields near Bapaume.

Turdus musicus (subsp. ?). Song-Thrush.

Uncommon. A few were observed in the Authuille marshes during the hard weather in January.

Turdus pilaris. Fieldfare.

Three of these birds were seen near Martinsart on 15 November, and two in the marsh at Hamel on 24 January. They were very shy on both occasions.

Turdus merula. Blackbird.

More numerous than the Song-Thrush, but not at all common. It was more frequently met with in March near Behagnies.

Phœnicurus titys. Black Redstart.

From 28 to 31 January one example frequented the ruined village of Mesnil, which was otherwise deserted save for a few House-Sparrows.

Erithacus rubecula (subsp. ?). Redbreast.

Common but not numerous.

Accentor modularis. Hedge-Sparrow.

About equal in numbers to the preceding species.

Troglodytes troglodytes. Wren.

Commonly seen in the reed-beds between Hamel and Authuille.

Picus viridis. Green Woodpecker.

A pollard willow in the marsh below Thiepval had been freshly marked by a Woodpecker on 28 November, but I did not see the bird here until 11 December, when one flew up and alighted on a tree near us, uttering its laughing cry. This particular bird frequented the vicinity all the winter.

Alcedo ispida. Kingfisher.

Once seen on 15 December near the Passerelle de Magenta. Its cry was heard near the same place on several other occasions.

Asio accipitrinus. Short-eared Owl.

On 5 November an Owl of this species was flushed from a turnip-field near Englebelmer. It flew off towards the shelter of the nearest trees and was immediately mobbed by Magpies and Rooks. On 13 March one was heard calling near Behagnies.

Carine noctua. Little Owl.

Common. Occasional examples were seen in the daytime perching on trees in the Thiepval marsh and in the orchards near Martinsart. Towards the end of March, when we were at Behagnies, their somewhat lugubrious but not unmusical whistling notes were frequently heard in the evenings among the trees near the village. It was noticed that they became particularly vocal on moonlight nights.

Falco peregrinus. Peregine Falcon.

On the 23rd of October one was seen flying high over the Schwaben Redoubt.

Falco tinnunculus. Kestrel.

Very common up till the end of February, when it began to disappear. By the end of March only a few were left. This Falcon was frequently met with in November and December near the front line, especially on the Thiepval Ridge round Schwaben Redoubt, and, later, at Grandcourt. The birds seen here must have been hunting mice, for no other game remained on the desolate shell-torn stretches of mud.

On 5 November, near Martinsart, I watched a Kestrel endeavouring to capture a meal from a company of Tree-Sparrows, which eluded their pursuer by taking refuge in a barbed-wire entanglement. The Kestrel followed them through its mazes with great agility, but, whenever he seemed on the point of being successful, a Magpie, which was watching the proceedings, would fly up chattering angrily and drive him off. The Magpie was aided and abetted occasionally by a Rook from a flock which was feeding near by. Finally, the Kestrel gave up the chase in disgust.

Anas boschas. Mallard.

During November and the early half of December the Mallard was very numerous in the marshes near the Passerelle de Magenta. When exploring the reed-beds in our home-made punt it is no exaggeration to say that we sometimes flushed thousands of duck about this time. Towards the end of December they had become much reduced in numbers, and until the middle of February they remained very scarce. I think this diminution in numbers was partly due to the amount of sniping to which they were subjected, and perhaps also to the weather, although the latter half of December was very mild and wet. On 22 February they suddenly returned, and there were hundreds in the marshes. Above Hamel, in February and March, none were seen with the exception of a few near Beaucourt railway-station.

Querquedula crecca. Common Teal.

The first Teal I saw flew out of the rushes near the Passerelle de Magenta, alarmed by a 4·2-inch shell which had just burst near it, killing one man and wounding several others. Some small parties frequented the marshes all winter, but they disappeared during the frost in January.

Nyroca fuligula. Tufted Duck.

On the 17th of February, after it had been thawing for some days, a flock of some ten birds appeared in the deep water below Thiepval. They had increased to sixteen on the 22nd of February, after which they were not again seen.

Glaucion clangula. Goldeneye.

One male in fine plumage appeared on 17 February in the open water just above the Passerelle de Magenta. A certain illustrious general came very near inflicting a casualty among some of our men, who were working near at hand hidden by the bushes, in an endeavour to secure this bird.

Another drake, or perhaps the same bird (which, by the way, survived its experience of the 17th), was seen in the river near Beaucourt railway-station on 26 February.

Ardea cinerea. Heron.

Two were seen in the marsh near Authuille on the 24th of January. Another was seen near the river at Hamel on 28 February, and during March it was twice seen in flight near Grandcourt.

Gallinago gallinago. Common Snipe.

Only twice seen, once on 26 February, and again on 14 March, on both occasions in the marsh near Beaucourt.

Numenius arquata. Curlew.

On the night of 28 March several Curlews, probably on migration, were heard calling near Behagnies.

Larus canus. Common Gull.

On 22 February a single Gull of this species was seen flying up the Ancre near Thiepval.

Podiceps fluviatilis. Little Grebe.

Not uncommon in the marshes between Hamel and Aveluy. During the frost in January they became surprisingly tame, and continued feeding and diving, within a few feet of passers-by, in little open patches of running water.

On 9 March we caught a Little Grebe sitting in the water close under the river-bank near Beaucourt. This bird had lost a leg,—evidently some time before,—possibly taken off by a splinter, for this region had been heavily shelled by both sides in the recent fighting. Despite its defect the bird was remarkably agile under water.

Rallus aquaticus. Water-Rail.

Common, even in those parts of the marshes which were shelled.

Gallinula chloropus. Moorhen.

This species was present in great numbers between Hamel and Aveluy, and it was almost equally numerous in the river below Beaucourt shortly after we had advanced through this village.

These birds suffered great distress during the spell of hard frost in January and February. On 24 January, when it had been freezing for some ten days and there remained but little open water, they were found huddled together in little companies amongst the long grass near the river. They would fly off clumsily and heavily and, when they alighted on the ice and began to run, they would frequently slip and fall and, where the ice was thin, would struggle along putting their feet through at every step. Lumps of ice of varying sizes hung from their breast-feathers and impeded their movements. By 30 January they had taken to congregating with the Coots round a few shallow patches of running water, into which they crowded to feed on the water-weeds when no one was near. They were persecuted by the soldiers, who considered them a welcome addition to the bill of fare, and great numbers were killed with sticks and caught by dogs. On 15 February, after it had been thawing for some days, they seemed to have quite recovered from their late vicissitudes.

There were very few Moorhens as far up the river as Miraumont.

Fulica atra. Coot.

This species was even more numerous than the preceding one in the Ancre marshes. These birds were, as a rule, much tamer and not so much given to skulking in the reeds. Towards the end of December, however, when large numbers had been shot by passing infantrymen, they became very wary, and, as one approached, they would scurry away over the water to take cover.

During the spell of frost they were in great distress and, with the Moorhens, suffered heavy casualties. They were more than once at this time observed on the wing, flying up and down over the marshes in search of open water. Their flight was weak, and they frequently blundered into trees.

They were found very numerous as far up the river as Beaucourt on 26 February, but above this point few were seen.

The Coots were very noisy in the evenings, and, during the moonlight nights in December, their cries were incessant until a late hour.

Columba palumbus. Ring-Dove.

Small numbers were seen in the vicinity of Bouzincourt and in Aveluy Wood, and in January a few came down to the marsh below Authuille. Towards the end of March there were large flocks of several hundreds of birds near Behagnies.

Perdix perdix. Common Partridge.

Partridges have become very numerous in this area, and coveys were to be found in every field round our battery positions before the advance began.

These birds paid remarkably little attention to the guns. On 31 October, near Englebelmer, I saw a party of seven or eight feeding in a stubble-field, about 30 yards in front of a 9·2-inch howitzer battery which was firing at the time. Again, on 3 November, there was a covey some 40 yards in front of our battery when we were about to engage a target. When the guns commenced firing directly over their heads they did not take flight, but continued chasing each other and crowing, merely pausing for a moment and crouching down each time a gun was fired.

A few of the birds penetrated to the shelled areas shortly after they fell into our hands, coveys being seen near Thiepval village in October and near Beaucourt and Grandcourt in February.

XXVIII.—*Birds of the Suez Canal Zone and Sinai Peninsula.*

By Captain A. W. Boyd, M.C.

Shortly after the outbreak of war I was stationed in Cairo, where I had the good fortune to meet Mr. J. L. Bonhote and Mr. M. J. Nicoll, and from them to learn to distinguish many of the local birds very much more quickly than I could possibly have done unaided; so many of the species were entirely new to me that without their assistance I should have been unable to compile even so incomplete a list as this.

After the Gallipoli campaign we returned to Egypt, and were there till February 1917: first on and about the Canal, and later in various places along the north Sinai road from Kantara to El Arish.

In this paper I propose to deal only with the birds seen after our return in 1916 up to February 1917. Very many interesting species noted near Alexandria and Cairo were never seen further east: the Great Spotted Cuckoo, the Glossy Ibis, Spoonbill, Pratincole, Black-tailed Godwit, Marsh and Wood Sandpipers, Black-winged Stilt, and very many other interesting birds which I saw near Cairo (in some cases in large flocks), were never seen near the Canal; the same applies to the common spring warblers such as Rüppell's, Bonelli's, the Olivaceous and Subalpine Warblers, and many other species. I did not even see the abundant little Warbler of the Delta, *Prinia gracilis*, and have no note of the occurrence of the Palm-Dove (*Turtus senegalensis*), nor of the Hooded Crow (*Corvus cornix*), though doubtless all three will occur in some of the cultivated land near Ismailia or Suez. More strange perhaps was the entire absence, so far as I could judge, of any species of *Ammomanes*, the Desert Larks, which I often saw near Cairo and which might surely have been expected to be plentiful enough.

During the spring migration of 1916 I unfortunately had little time for observation, and many species must have passed through unseen; but in the autumn I had rather better opportunities at Romani and at Mohammedia on the coast, a few miles north of Romani.

The direction taken by migrating birds in the autumn was interesting: Ducks in remarkable numbers were continually passing in September (always too far out at sea for the purposes of identification), and they, Herons, Waders, &c. all passed from east to west—along or parallel to the coast. On some days in September countless thousands must have passed, flock following flock for hour after hour, and always in the same direction, from east to west. The smaller birds however, the Quail, Warblers, Wheatears, and such species, which were passing in great numbers at the same time, were moving (so far as my own observation went) always from north to south, and during the daytime I not infrequently saw them come in from the north over the sea and pass straight on into the desert, where the scrub for weeks was full of Warblers, Shrikes, and Buntings, in every direction —a remarkable change compared with the scanty resident bird-population of a few weeks earlier.

Later in the year, however,—at the end of October and in early November—I noticed that Skylarks in great flocks (and Starlings to a certain extent), which had just arrived, were passing at Romani, a few miles from the coast, in the east to west direction, which the Ducks followed two months earlier.

During our progress east as far as El Arish little bird-life was to be seen in the desert: migration was then practically over, and it is evident that no great numbers of birds are resident there; there were, of course, the usual desert species, such as the Pallid Shrike (*Lanius elegans*), the Bifasciated Lark (*Certhilauda alaudipes*), Crested Larks, in patches of suitable ground, and other familiar species, but often a day would pass and a few Brown-necked Ravens be the only birds seen.

It was quite impossible to collect any specimens, and I was therefore unable to identify more than a tithe of the Warblers and Buntings in their autumn plumage. A collector would find much of interest in Sinai.

The character of the country varied, though for the great part of our time we were on the desert. The only cultivation we saw was a fruitful tract of land at Suez and a much smaller patch at Ismailia, though there was a certain amount of growth along the Sweet-Water Canal, which runs parallel to and a few yards from the Suez Canal.

The desert east of the Suez Canal in the south was bare, with very little scrub of any sort, but further north round Ballah the scrub grew thicker altogether, and along the north road the desert was thickly covered in many parts as far as the eye could see. This road too was relieved by fairly frequent Palm-" Hods," and at Katia the oasis was of considerable extent. All along the road water of brackish quality is plentiful, and consequently the Palm-Hods usually occur every few miles ; it is only on reaching El Arish that the desert—sand-dunes west of the town—becomes quite bare again.

The number of birds to be seen is naturally smaller where the desert is quite bare, but it cannot be said that the more thickly covered tracts held any great numbers except during the period of migration.

Two very fruitful spots I was unable to visit except on two or three occasions : a salt-marsh between Suez and Kubri, and another marsh on the north coast near Port Said, which I only saw from the coast railway. Systematic observation and collecting would soon add scores of species to the following list.

Dates given refer to 1916 unless otherwise stated.

The nomenclature is that of Dresser's 'Manual of Palæarctic Birds' (1903) ; the difficulty of distinguishing many subspecies without collecting made it impossible to discriminate more closely.

Turdus viscivorus. Missel-Thrush.

A single bird flew south over the sand-dunes at Mohammedia on 29 October. This is, I understand, the first record of this bird for Egypt ; my attention was fortunately first attracted by its call-note, so that I was able to identify it with certainty.

Turdus musicus. Song-Thrush.

One at the end of October at Romani and one at Ismailia in the palm-grove on 18 Feb., 1917.

Turdus merula. Blackbird.

One among the palms at Ismailia on 18 Feb., 1917, was the only specimen seen, but I believe that several birds seen at dusk at Rabah (N. of Katia) on 20 Nov. were Blackbirds.

Monticola saxatilis Rock-Thrush.

A single female or immature male at Mohammedia on 17 Oct. I saw a number at Alexandria in the spring of 1915.

Monticola cyanus. Blue Rock-Thrush.

One at Shallufa on the Canal-bank on 16 March.

Saxicola œnanthe. Common Wheatear.

I saw this species first on 22 March at Shallufa, and by 1 April it was quite common there and in large numbers at Suez on 3 April. In the autumn it was quite common at Romani in September.

Saxicola melanoleuca. Black-throated Wheatear.

A few at Shallufa and Suez in early April ; on 14 April some numbers were passing at Suez. Odd specimens at Romani at the end of August and in early September.

[**Saxicola finschi**. Arabian Wheatear.

Several birds at Mazar seen during the first fortnight of December were almost certainly of this species, but I prefer not to say so definitely as I was unable to secure any specimens.]

Saxicola deserti. Desert Wheatear.

A few seen as far east as Mazar along the Sinai desert.

Saxicola isabellina. Isabelline Wheatear.

On 4 July I got a view of a bird that looked like an Isabelline at Ballah near the Canal. In the autumn it was very common at Mohammedia in October.

The Wheatears proved to be a most difficult group owing to the impossibility of handling any specimens, and I saw at least two more species which I cannot identify.

Pratincola rubetra. Whinchat.

A number were passing at Suez from April 14 to 23; in the autumn I saw only a single specimen at Mohammedia on Oct. 15.

Pratincola rubicola. Stonechat.

First seen on Oct. 20 at Mohammedia; a few there and at Romani from that time till we went forward to Mazar. On the march along the north Sinai road about the end of November I saw them commonly.

Ruticilla phœnicurus. Redstart.

From Oct. 11 to 17 this species was quite common at Mohammedia, especially in the small bushes on the sand-hills near the sea.

Ruticilla titys. Black Redstart.

A male at Romani on Nov. 17; a single bird at Rabah on Nov. 22.

Erithacus rubecula. Redbreast.

I saw none till Nov. 24 and 25 at Tillul (near Mazar) and again on Nov. 28 at Mazar; one or two in the palm-grove at Ismailia on Feb. 18, 1917.

Daulias luscinia. Nightingale.

I got a poor view of a bird that was almost certainly a Nightingale on April 23 at Suez; one near Romani on Sept. 9 in the desert-scrub.

Sylvia curruca. Lesser Whitethroat.

Several on Sept. 1 at Mohammedia; Sept. 6 to 19 common at Romani.

Phylloscopus trochilus. Willow-Wren.

Still passing on Sept. 28 near Kantara.

Phylloscopus collybita. Chiffchaff.

About the first week of November I noticed these birds quite commonly among some trees at Romani.

Aedon galactodes. Rufous Warbler.

When we reached the Katia oasis on Aug. 6 these were fairly common and evidently breed there, for I saw a young bird among the palms on Aug. 11. They seemed to be very fond of the bushy tops of the palms. I also saw an odd bird at Romani on Aug. 22, but they seem quite uncommon on the desert.

Acrocephalus arundinaceus. Great Reed-Warbler.

In the reeds by the Sweet-Water Canal, Shallufa, in March. I had no means of deciding whether this was one of the Egyptian subspecies or not.

Cisticola cisticola. Fantail Warbler.

At Suez in April in the cultivation.

Motacilla alba. White Wagtail.

In the spring I have no note of their occurrence after April 13, when they were not uncommon at Suez. In the autumn I first saw two on Oct. 5 a few miles east of Kantara, though I had heard passing birds calling for a few days; from that date they were fairly common in the desert, and I noticed an increase at Mohammedia in the last weeks of October. At the beginning of November they were abundant and very tame, often coming into our tents. About Dec. 26 they seemed to increase in numbers locally at Mazar, where there were several considerable flocks, and again at Ismailia in February, 1917, they were remarkably common in the camps, where I heard one singing on Feb. 20.

Motacilla flava. Blue-headed Wagtail.

On April 13 and 14 patches of cultivation at Suez were full of Yellow Wagtails most of which were of this species, and they were still passing on April 29.

In the autumn Yellow Wagtails first appeared at Romani on Aug. 24, and were very abundant there and at Mohammedia till about Sept. 19, but the majority seemed to be young birds and it was difficult to distinguish the species. On the Gallipoli Peninsula in the previous year they appeared for the first time in the autumn, on Aug. 19.

Motacilla viridis. Grey-headed Wagtail.

On April 14 and 29 at Suez in the large Wagtail flocks.

Motacilla melanocephala. Black-headed Wagtail.

On April 13 at Suez and Aug. 24 at Romani. These were the only ones I definitely identified.

[**Anthus richardi.** Richard's Pipit.

On March 31 at Shallufa and April 3 at Suez I saw large Pipits which I think were of this species.]

I failed to identify any Pipits definitely, but I think I saw Tree-Pipits at Suez on April 14. In the spring of 1915, when I had more time for observation, I saw many Red-throated, Tree, and Tawny Pipits in the Delta.

Lanius elegans. Pallid Shrike.

This was a common resident species from Ballah and Kantara on the Canal to Mazar. I saw it frequently all along the north road, and at Katia on Aug. 11 saw one with a young bird. It was quite common in and about the camps at Mazar in December.

Lanius collurio. Red-backed Shrike.

First seen at Romani on Aug. 21 and in numbers till Sept. 10; they were noticeably common about the end of August among the desert-scrub.

Lanius auriculatus. Woodchat Shrike.

One seen on April 15 at Suez in a bush at the edge of the cultivation.

Lanius nubicus. Masked Shrike.

On April 21 I saw one at Port Tewfik (Suez) in a tree at the water's edge; in the autumn there was one at Romani on Aug. 22.

Muscicapa grisola. Spotted Flycatcher.

Several on April 21 at Port Tewfik; one at Mohammedia on Oct. 22.

Muscicapa collaris. White-collared Flycatcher.

There was a number in an isolated palm-grove in the desert near Suez on April 12.

Hirundo rustica. Swallow.

Swallows were passing on March 22 at Shallufa, and by April 14 had become quite common at Suez and were passing north daily in small flocks throughout the month. From May 21 to 27 they were always present in Suez and Kubri in small numbers everywhere, and there were odd birds at Kubri and a few miles east of Kubri on the desert on June 4 and 14—a late date when it is considered that they do not breed in Egypt. The return migration began as early as Aug. 7, when I saw a single bird at Katia; by Aug. 31 many were passing south at Mohammedia, and there and at Romani they were quite common for the first three weeks of September. There were always a few to be seen till the fourth week of October, but I have no note of any occurrence after Oct. 24, when there was still a fair number about.

Hirundo savignii.

This, the Egyptian subspecies, I never saw out in the desert, though it was common enough in such places as Kantara. On Sept. 8 at Kantara (when the migration of Swallows was at its height) the typical Swallow was in far greater numbers than this form, which was there through the summer. A friend found a nest there and told me that the birds had chestnut underparts.

Chelidon urbica. House-Martin.

Strangely few of this species were seen: I saw odd birds on April 14 and 21, and on April 29 noticed their passing in numbers, but that was the only occasion on which I saw many. On June 2 two were flying round a camp in the desert some miles east of Kubri, on the Canal.

Cotile riparia. Sand-Martin.

On April 1 a few were passing Shallufa with typical Swallows, and others at Suez on April 23. At Kubri I found them common on May 25, but these last were most probably of the Egyptian subspecies (*littoralis* or *shelleyi*) which breeds in Egypt. On Aug. 30 and 31 very many were going south at Mohammedia on the north coast; these will almost certainly have been typical Sand-Martins.

Cotile obsoleta. Pale Crag-Martin.

One or two at Suez over the desert just west of the town on May 23. I saw this bird in plenty at Luxor during a short visit in March 1915.

Passer domesticus. House-Sparrow.

Common at all the canal and desert camps. At such places as Mazar it was there practically as soon as the troops and in some numbers. In each desert camp such as Romani, Bir-el-Abd, &c. it was abundant.

I cannot state definitely the dates on which Sparrows first occupied the desert camps, but they were in each when I passed through them and were already well established at Mazar—not far from El Arish—not long after it was occupied late in the autumn. Whether they moved to the new camps in the spring I am quite unable to say, as at that time we were on or about the Canal in older established positions.

Fringilla cœlebs. Chaffinch.

First seen at Mohammedia on Oct. 23; on Nov. 17 I saw a fair-sized flock at Romani.

[**Emberiza cæsia.** Cretzschmar's Bunting.

I believe that some of the fairly numerous Buntings passing at the end of August were of this species, but I rarely got more than a fleeting glance of them and prefer not to say so definitely; it is almost certain to have been one of several species seen.]

Certhilauda alaudipes. Bifasciated Lark.

This striking desert bird was not uncommon at all places from Kantara to Mazar along the north road, and I also saw it at Ballah on the Canal, a little distance south of Kantara.

Alauda arvensis. Skylark.

The first arrived at Mohammedia in the last week of October, and during the first four days of November there was a very noticeable movement of large numbers at Romani from east to west. A week later there were still many about, but the east to west movement was not so definite; towards the end of the month they were to be seen commonly all along the north road from Romani eastwards. An increase in numbers was noticed at Mazar about New Year's Day, 1917.

Corydus cristatus. Crested Lark.

This bird occurred very plentifully in suitable spots such as Kubri, but was not to be seen except in the damper parts of the desert where there was plenty of low vegetation; thus there were a few at Mohammedia and Romani about certain patches of ground, and again near Bir-el-Abd, while at Tillul some distance further east they suddenly became abundant and disappeared in a few miles. They always seem to be very tame birds.

Calandrella brachydactyla. Short-toed Lark.

In the spring I saw only one small bunch—at Shallufa on March 26. In the autumn large flocks containing several hundreds were common near Romani and Kantara from Sept. 6 to the end of the month.

Sturnus vulgaris. Starling.

First seen at Mohammedia on Oct. 23 and in considerable flocks throughout November. In mid-winter they were not to be seen regularly about the desert, though I noticed them at Mazar on the last day of the year.

Corvus umbrinus. Brown-necked Raven.

To be seen everywhere from Suez along the Canal, usually in pairs; near the Canal I never saw more than ten together (at Kubri in June), but they were remarkably numerous along the north road at Bir-el-Abd, Bir-el-Salmana, and Mazar—frequently the commonest bird by far.

Cypselus apus. Swift.

Odd birds were passing at Suez on April 21 and 23, which, so far as I could judge, were certainly Common Swifts; the Pallid Swift (*C. murinus*), which I saw in great quantity at Cairo and Luxor, may possibly have been passing, and these two species are difficult to distinguish on the wing when at any height.

Caprimulgus sp.? Nightjar.

On Oct. 19 two flying in our camp on the coast at Mohammedia at dusk.

Alcedo ispida. Kingfisher.

In April at Suez; early in September this bird was quite abundant at Mohammedia and all along the coast from there to Port Said, fishing in the pools and perching on the scrub growing on the sand-hills. I think that this was entirely a migratory movement, as I have no note of its occurrence during the last two weeks of October and early November, though I passed over exactly the same ground.

Whether these were of the Egyptian subspecies, *Alcedo i. pallida,* I cannot say.

Ceryle rudis. Pied Kingfisher.

At various places on the Suez Canal and also by Lake Timsah, at Ismaïlia.

Coracias garrulus. Roller.

On April 23 some scores were along the edge of the marsh north of Suez, where there had been none the previous day; on April 29 there were five left. On the return migration I saw two at "Mt. Royston" during the Romani—Katia battle on Aug. 5 and one at Katia on Aug. 13; by Aug. 26 there were numbers at Romani, where I last saw one on Sept. 7.

Merops apiaster. Bee-eater.

There were twenty in one tree at Suez on April 14, evidently just newly arrived; from April 19 to 23 they were passing in great numbers at Suez, and were to be seen everywhere in the cultivated parts.

Merops persicus. Blue-cheeked Bee-eater.

I saw none till April 29 at Suez, where there was a flock, and on the following day there were many by the railway between Suez and Ismailia.

In 1915 at Cairo I saw *M. persicus* considerably earlier than *M. apiaster*, and believe that usually it is the earlier to arrive. I never saw the Green Bee-eater (*M. viridis*) east of Cairo.

Upupa epops. Hoopoe.

From April 2 to 29 on a number of occasions I saw odd birds passing at Suez and Port Tewfik, on one occasion at some distance out in the desert; odd birds were returning at Romani and Mohammedia at the end of August. I believe that all these were typical Hoopoes passing to and from Europe rather than the local subspecies, *U. e. major*.

Asio accipitrinus. Short-eared Owl.

On Nov. 5 and 7 I saw a single bird at the same spot near the railway half-way between Port Said and Mohammedia.

Gyps fulvus. Griffon Vulture.

On June 5 I got within a few yards of one which was on a sand-hill in the desert a few miles east of Kubri.

On the north road I saw strangely few: one at Katia flying over the oasis on Aug. 12, and at Mazar, one on Nov. 28, and five on Dec. 13 circling at a great height over the camp. The Turks in their retirement had left numbers of dead horses and draught-bullocks by the track which, one might have expected, would have attracted them.

Neophron percnopterus. Egyptian Vulture.

Not uncommon along the Canal from Ismailia to Suez, but I never saw a single bird at Kantara or anywhere east of that place in the Sinai Peninsula.

Circus æruginosus. Marsh-Harrier.

A single bird at Mohammedia on Sept. 1.

[**Circus cyaneus.** Hen-Harrier.

A single bird flying among the sand-dunes at Rabah, just north of Katia, was too dark for a Pallid Harrier and was most probably of this species.]

Buteo desertorum. Desert-Buzzard.

Fairly common along the Canal from Suez northwards and all along the north road.

Buteo ferox. Long-legged Buzzard.

A few in various places, but much less common than *B. desertorum*; a splendid male at Shallufa on April 1.

Archibuteo lagopus. Rough-legged Buzzard.

I got a good view of a single bird among the sand-dunes at Romani on Nov. 15.

I twice (at Suez and Mohammedia) during migration saw what were evidently Eagles, but I could not identify them satisfactorily.

Milvus ægyptius. Yellow-billed Kite.

Common at Ismailia; at Kantara in July. On Oct. 16 and 17 there were two at Mohammedia at the edge of the sea, and I distinctly saw their yellow bills. It would seem that they were migrating, as there were no resident birds there; Mr. Bonhote told me that he secured one in the autumn on the coast of the Delta, to the east of Port Said.

[**Falco cherrug.** Saker.

On Oct. 22 I saw a Falcon at Mohammedia closely resembling specimens in the Cairo Museum and the Dresser collection.]

[**Falco subbuteo.** Hobby.

A small Falcon, most probably a Hobby, flew overhead by the sea at Mohammedia on Oct. 16.]

Falco tinnunculus. Kestrel.

Fairly common along the Canal and as far east as El Arish. I did not identify the Lesser Kestrel, which probably occurs also.

Phalocrocorax carbo. Cormorant.

Five at Suez on April 2 by the Gulf of Suez.

Pelecanus sp.? Pelican.

Fifteen flying west at Mohammedia on Oct. 20.

Ardea cinerea. Grey Heron.

A few at Shallufa and Suez in April.

Ardea purpurea. Purple Heron.

One at Shallufa on April 1 by a pool near the Sweet-Water Canal. In the autumn I first saw a few on Sept. 1 and 2 at Mohammedia; on Sept. 3 I saw two flocks, one of which must have numbered hundreds, passing from east to west along the coast between Mohammedia and Port Said.

Ardea ralloides. Squacco Heron.

On May 27 there was a single bird in a marsh on the west side of the Canal at Kubri, but I saw no others; near Cairo in 1915 I saw it in some numbers.

Nycticorax griseus. Night-Heron.

Early in September I twice saw birds passing too far out at sea to be identified with certainty, but on Oct. 12 I found two young birds in a thorny bush near the sea and identified them at close quarters. I knew the bird well from having seen it frequently in the well-known colony at the Zoological Gardens at Giza.

Ciconia alba. White Stork.

On April 22 there were hundreds on the salt-marsh north of Suez and scattered in smaller numbers among the fields and in the cultivation; but on the next day only a few were left, and they were reduced to six by April 29. A single bird which I saw near Kubri on May 27 was probably a cripple.

Ciconia nigra. Black Stork.

On April 29, on the marsh north of Suez, there was a flock numbering between sixty and seventy.

Phœnicopterus roseus. Flamingo.

On Oct. 11 a flock of sixty was passing along the coast from east to west at Mohammedia. On Nov. 7, on the inundation near Port Said, there must have been several thousands; I was told that they were very commonly seen on the inundations.

Spatula clypeata. Shoveler.

On April 3 I saw a small bunch (4 drakes and 6 ducks), flying along the edge of the Gulf of Suez, which later settled in shallow water. Probably many of the Duck seen off the north coast in autumn were of this among other species.

Querquedula circia. Garganey.

Two drakes on April 3 on the Gulf of Suez with the Shovelers. Round Cairo I saw this species on a good number of occasions.

Mareca penelope. Wigeon.

On April 1 there was a flock of thirty to thirty-five on a pool and a shallow salt-lagoon at Shallufa, just on the west side of the Suez Canal.

Turtur communis. Turtle-Dove.

Passing at Suez from April 24 to 29, when they were quite common; common for the first three weeks of September at Mohammedia and Romani.

I have no note of the occurrence of *T. senegalensis* in the Canal zone; possibly I saw this abundant Eygptian bird and failed to record it in my note-book.

Pterocles sp.? Sand-Grouse.

I saw birds at Shallufa in April, east of Kantara in July, and in December at Mazar on the sand-dunes, but never sufficiently well to be able to determine the species.

Coturnix communis. Quail.

In the spring I saw only six birds at Shallufa on March 25 and one at Suez on April 14. In autumn they were first seen at Mohammedia on Sept. 1, and were common there and at Romani during the first three weeks of September; during October there were a few about Mohammedia, where I last saw one on Nov. 5.

On several occasions I saw this bird coming in from the north over sea during the day.

Porzana maruetta. Spotted Crake.

On Sept. 27, in the desert a few miles east of Kantara, a man brought a live bird to me which he had found under a blanket in his tent.

Gallinula chloropus. Moorhen.

Occasionally on the Sweet-Water Canal. On Sept. 3 a man brought a live bird to me which he had caught in a hole in one of the sand-hills near the sea; it must almost certainly have been a migrant.

Œdicnemus sp.? Stone-Curlew.

A single bird near Suez on May 22.

Ægialitis geoffroyi. Geoffroy's Plover.

One at Ballah on July 2 with some Kentish Plovers on a salt inundation, but I saw nothing more of this species there, nor signs of their breeding; in September and October it was quite common along the edge of the sea at Mohammedia and along the coast towards Port Said.

Ægialitis cantiana. Kentish Plover.

I saw only an odd bird at Suez in April, but found it breeding in some numbers on the salt-marshes at Ballah in June and caught a number of youngsters on June 25.

In the autumn there were a few on the north coast in early September, but I saw them more commonly in October along the edge of the sea at Mohammedia.

Ægialitis hiaticola. Ringed Plover.

Odd birds and a small flock at Suez in the first half of April; in October and November on the coast at Mohammedia.

Ægialitis curonica. Little Ringed Plover.

On April 3 there were three in a patch of salt-marsh about 1½ miles from the sea (the Gulf of Suez); all were yellow-legged and evidently of this species.

Hoplopterus spinosus. Spur-winged Plover.

I saw only two of this abundant Egyptian bird—a few miles east of Kantara on Sept. 28.

Vanellus vulgaris. Lapwing.

One seen on Nov. 22 at Bir-el-Abd and four flying west on the following day; at Mazar there were always a few among the sand-hills, and I noticed an increase between Dec. 5 and 8.

Hæmatopus ostralegus. Oyster-catcher.

Ten at Port Tewfik (Suez) on April 2 and other odd birds during that month.

Recurvirostra avocetta. Avocet.

Only one seen in the spring at Port Tewfik on April 15; in the autumn it occurred quite frequently passing from east to west along the coast, where I first saw a flock on Aug. 19 and on several occasions in September. On Nov. 7 there was a flock of some hundreds on one of the shallow stretches of water at Port Said.

Gallinago cœlestis. Common Snipe.

This bird, so abundant in Egypt in suitable places, I only saw twice in the Canal zone—at Shallufa in March—and never in Sinai.

Tringa alpina. Dunlin.

In the spring at Suez there were a score on April 8 and a small flock on April 14; on Sept. 5 a single bird was at a small water-hole half-way between Mohammedia and Romani; about the middle of October there were always a few to be seen at Mohammedia.

Calidris arenaria. Sanderling.

Abundant early in September along the coast between Port Said and Mohammedia; eight at Mohammedia on Oct. 15.

Totanus calidris. Redshank.

Common at Suez in April; I heard one calling at Ballah on June 25, and saw two near Bir-el-Abd on Nov. 22 by a desert-pool.

Totanus ochropus. Green Sandpiper.

On April 1 one by a pool at Shallufa; one on April 14 and three on April 23 at Suez. It occurs commonly in the Delta.

Totanus hypoleucus. Common Sandpiper.

Only seen twice: one at Suez, April 29; one near Mohammedia, Nov. 5.

Numenius arquatus. Common Curlew.

Fairly common at Suez in April, and a number still at Port Tewfik on May 28. I did not identify *N. tenuirostris* among them.

Hydrochelidon hybrida. Whiskered Tern.

Three dark-breasted Terns flew north up the Canal at Shallufa on April 1, and I am fairly confident that this was the species which I had clearly identified at Abou Zabal near Cairo in April 1915.

Sterna minuta. Little Tern.

On April 14 I saw four Little Terns at the water's edge at Suez, and I was able to approach closely enough to see their yellow bills. On Sept. 1 two Terns flying from east to west along the coast at Mohammedia were either of this species or were immature *Hydrochelidon nigra.*

Rissa tridactyla. Kittiwake.

A few immature birds at Port Said on March 15.

Larus ridibundus. Black-headed Gull.

I have a note of its occurrence very commonly along the Canal from Suez to Port Said in February, March, April, and November.

Larus ichthyaëtus. Great Black-headed Gull.

I saw a number in the Gulf of Suez and an odd bird up the Canal as far as Kubri on May 28.

Larus cachinnans. Yellow-legged Herring-Gull.

Common in March, April, and November at Port Said and Shallufa (on the Canal), and probably at other times; at Mohammedia in September and a large flock always at El Arish in January, where they often flew over the town as if accustomed to feed there. They seemed to be tame, and on occasions settled among our bivouacs.

Larus fuscus. Lesser Black-backed Gull.

During April there was a large flock at Suez, and I noticed it increased greatly about April 29, when they were probably passing. I saw this bird in February, March, April, and May along the Canal.

Puffinus yelkouanus. Levantine Shearwater.

Odd birds on Sept. 1 and 5 off Mohammedia. Mr. H. H. Storey picked up one of this species there.

XXIX.—*Further Notes on the Birds of the Province of Fohkien in South-east China.* By J. D. D. La Touche, M.B.O.U.

With the exception of the two Gulls, which were obtained several years ago, the birds mentioned in the following notes have been received at various times from Foochow during the past four years.

The following are to be added to the birds formerly recorded from the Province of Fohkien:—

Emberiza melanocephala.
—— rustica.
Chelidon dasypus.
Hirundo erythrogaster.
Merops sumatranus.
Sphenocercus sieboldi.
Sterna media.
Larus glaucescens.
—— affinis.
Puffinus griseus pescadoresi.
Plegadis falcinellus.
Demiegretta sacra.
Butorides amurensis.
Sarcidiornis melanonota.
Fuligula rufina.
—— baeri.
Oidemia americana.

Of the above, the following are additions to the avifauna of China:—

Emberiza melanocephala.	Fuligula rufina.
Sphenocercus sieboldi.	Larus glaucescens.
Sarcidiornis melanonota.	—— affinis.

The following birds, previously doubtfully recorded, can now be definitely added to the list of Chinese birds:—

Plegadis falcinellus.	Oidemia americana.

Paradoxornis guttaticollis A. David.

David & Oustalet, Ois. Chine, p. 203, pl. 64; Rickett & La Touche, Ibis, 1897, p. 605.

An egg from central Fohkien, in the collection of the British Museum, is a rather pointed oval, smooth, slightly glossy, pure white, with a few minute rufous dots and short irregular purplish-grey lines, chiefly at the large end. It measures 22·5 × 17 mm.

Stoparola melanops (Vig.).

D. & O. p. 116; Rickett, Ibis, 1894, p. 221.

A male, dated September 1913. This is the first example recorded from Fohkien since the one mentioned by Mr. Rickett as shot at Foochow in January.

Junco siemsseni Martens.

La Touche, Ibis, 1913, p. 277, pl. vi.

A second female example from Kuatun in north-west Fohkien, dated February 1914. It is quite similar to the one figured in 'The Ibis.'

Emberiza melanocephala Scop.

A Bunting, sexed female by the collector and dated September 1913, appears to be a female Black-headed Bunting. I am informed that it was shot at Foochow from a party of *Emberiza aureola*.

Description.—Head and upper parts, surface of wings, and tail pale sandy brown, finely streaked with brown except on the sides of the head and neck. Inner surface of wings and tail brown. Throat whitish; breast and flanks like the back, but much paler and very finely streaked. From the breast to the under tail-coverts yellowish white, here and there more yellow. Under tail-coverts rather pale yellow. Wing 3·4 inches, tail 2·68, culmen 0·5, tarsus 0·9.

Emberiza spodocephala Pall.

D. & O. p. 324 ; La Touche, Ibis, 1892, p. 427.

An immature male, dated 1913, has the upper tail-coverts mostly white ; the bases of the feathers of the head, neck, lower back, rump, and underparts are pure silvery white ; the fringes of the tertiaries are mostly white.

Emberiza rustica Pall.

D. & O. p. 324.

Four males and a female, dated 28 and 29 October, 1913, 20 November, 1913, and 5 January, 1914.

Hirundo erythrogastra Bodd.

A male from Foochow, dated March 1913.

Chelidon dasypus Bp.

A male dated February 1913, and a male and a female labelled Central Fohkien, April 1914.

Motacilla leucopsis Gould.

Motacilla alboides D. & O. p. 298 ; La Touche, Ibis, 1892, p. 419.

An albino, labelled:—"Foochow, 14 November, 1913. Female." Head and body pure white, except two or three pale brown feathers on crown. Wing-quills (except tertiaries, which are white) and primary-coverts pale brown. Tail white, except three rectrices which are blackish.

Another example, not sexed, dated 16 December, 1913 has the upper-parts mixed white and grey.

Merops sumatranus Raffles.

Merops bicolor D. & O. p. 73.

One male and three females from central Fohkien, dated

May 1913, and two males and two females from Wu Yi Shan in north-west Fohkien, of the same date. This Bee-eater has been previously recorded from the Poyang Lake in the Kiangsi Province.

Acanthyllis caudacuta (Lath.).

Chætura caudacuta D. & O. p. 70.

A pair from central Fohkien, dated May 1914. I have seen four others from the same locality.

Harpactes yamakanensis Rickett.

Harpactes yamakanensis Rickett, Bull. B. O. C. viii. 1899, p. xlviii; Ibis, 1899, p. 444.

A male, dated April 1913, has the right flank bright yellow.

Syrnium indranee (Sykes).

Syrnium indrani Rickett, Ibis, 1900, p. 57.

A female example from central Fohkien, dated February 1901.

Bubo ignavus (Forst.).

Bubo maximus D. & O. p. 39; La Touche, Ibis, 1892, p. 481.

Two eggs, obtained near Foochow together with the male bird on the 14th of January, 1908, measure 61 × 48 and 61·5 × 49 mm. These are now in the collection of the British Museum.

Scops stictonotus Sharpe.

La Touche, Ibis, 1900, p. 46.

Two eggs from north-west Fohkien, now in the British Museum, are a round oval, rather smooth in texture. They measure 31 × 26 and 32 × 26 mm.

Pernis elliotti Jerdon.

La Touche, Ibis, 1913, p. 279.

I have a second example from Changlo Hsien in north Fohkien, dated 10 November, 1914. The underparts are dirty white, with a very few fine shaft-stripes; there is no necklace.

Sphenocercus sieboldi Temm.

Sphenocercus sororius La Touche, Ibis, 1913, p. 280.

The specimen has been identified as being of this species by Mr. W. R. Ogilvie-Grant.

Scolopax rusticola L.

D. & O. p. 475 ; La Touche, Ibis, 1892, p. 497.

An example of the Woodcock, shot at Foochow on the 7th of December, 1916, has the primaries, the primary-coverts, the winglet, the corresponding parts of the under wing-coverts, the first secondary of one wing, and the first two of the other wing pure white. The underparts are rather pale, but the bird is otherwise normal. The contrast between the Woodcock plumage and the white flight-feathers is most striking.

Sterna media Horsf.

Two female examples of the Allied Tern were shot at Foochow in April 1916. The wings measure 12·3 inches and 12·4 inches. This Tern appears to have been observed on the coast of Kwangtung (Vaughan & Jones, Ibis, 1913, p. 376).

Sterna longipennis Nordm.

D. & O. p. 526.

A female example from Foochow, dated May 1913. Wing 11·3 inches.

Sterna tibetana Saunders.

Sterna fluviatilis D. & O. pp. 525–6 [part?].

A male and a female from Foochow, dated April 1916. Both these birds and the above are in breeding-dress.

Anous stolidus (L.).

Rickett, Ibis, 1900, p. 60 ; D. & O. p. 529.

A male from Foochow, dated 21 September, 1912.

Pelecanus crispus Bruch.

A fine adult female of the Dalmatian Pelican was shot near Foochow in April 1913. The pouch was bright red and had a black mark at the base of the lower mandible. Wing 27 inches, culmen 14·25.

Puffinus griseus pescadoresi.

Neonectris griseus pescadoresi Mathews & Iredale, Ibis, 1915, p. 602.

A skin of a Shearwater, which appears to be of this species, was sent to me from Foochow. It is labelled "Foochow, May 1916." Wing 11·25 inches, culmen 1·52.

Plegadis falcinellus (L.).

Ibis falcinellus D. & O. p. 455.

Three adult examples of the Glossy Ibis were shot at Foochow on the 19th of April, 1913. This bird was included among the birds of China by Swinhoe and David & Oustalet on the authority of sportsmen, who had told Swinhoe that they had seen the bird in Chekiang.

Demiegretta sacra (Gm.).

Vaughan & Jones, Ibis, 1913, p. 369.

I have an example, dated 14 February, 1914, sent to me from Foochow, which is stated to have been shot at Hing Hua on the coast of Fohkien. It is slate-coloured, with a white line down the centre of the throat. Wing 10·5 inches.

Butorides amurensis Schrenck.

Butorides macrorhynchus D. & O. p. 443.

I have an immature example of the Amoor Green Heron, shot at Foochow in September 1914.

Nyctiardea magnifica Ogilvie-Grant.

La Touche, Ibis, 1913, p. 282.

I have four more examples of this fine Heron, all obtained in May 1914 and on the 7th and 20th of March, 1915, in central Fohkien, where the bird is said to breed. Two are adult males, one is an adult female, and the fourth (dated 7 March) is a female in immature plumage. This bird differs as follows from the adult:—There is no black or orange on the head and neck, the black being replaced by deep brown, each feather having a pale buff or whitish elongated spot near the tip. The scapulars, interscapular region, wing-coverts, winglet, and tertiaries are tipped with large whitish spots. The crest is short.

Anser segetum (Gmel.).

A Bean-Goose, sent to me from Foochow, labelled "♀, Changlo Hsien, North Fohkien, November 1916," is one of five shot out of a flock of a hundred or so. This bird had the sides of the upper mandible yellow or orange from the nail to about two-tenths of an inch from the base of the bill. The five geese shot were reported to be all similar in this respect. Culmen 64 mm., teeth 20. Several Bean-Geese, shot at Chinwangtao in March 1913 and now in the Natural History Museum in London, had the bill coloured much the same.

Sarcidiornis melanonota (Penn.).

I have two handsome males of the Comb-Duck, shot at Foochow, one on the 18th of April, 1914, and the other in June of the same year. I was informed at the time that a party of these duck had appeared that year at Foochow. The date of the last-mentioned bird would seem to indicate that they were breeding.

Fuligula rufina (Pall.).

I have a female, labelled "Foochow, December 1915." Culmen 1·93 inches, wing 10·23.

Fuligula baeri Radde.

D. & O. p. 509, pl. 124.

I have an immature male from Foochow, dated 20 December, 1913, and have lately received a duck from the same locality, labelled "♀, 5 Nov., 1916," which appears to be of the same species.

Oidemia americana Swainson.

I have a female from the Lienchiang River, near Foochow, dated 5 December, 1914. Although Swinhoe included this duck in his Revised List (P. Z. S. 1871, p. 419), David & Oustalet omitted it from their work on Chinese birds, and state that Swinhoe had subsequently identified Captain Blakiston's birds as being the Velvet Scoter.

Mergus squamatus Gould.

Ibis, 1913, p. 283.

I have two females, obtained in winter in central Fohkien.

Podicipes holboelli Reinhardt.

Rickett, Ibis, 1894, p. 226.

I have lately received two skins from Foochow, one of them shot in central Fohkien and dated December 1915; wing 7·6 inches, culmen 2. The other, merely labelled "Fokhien," is dated 20 January, 1917; wing 7·85 inches, culmen 2.

Larus glaucescens Naum.

An immature example of this Gull, obtained at Foochow, was identified by the late Mr. Howard Saunders.

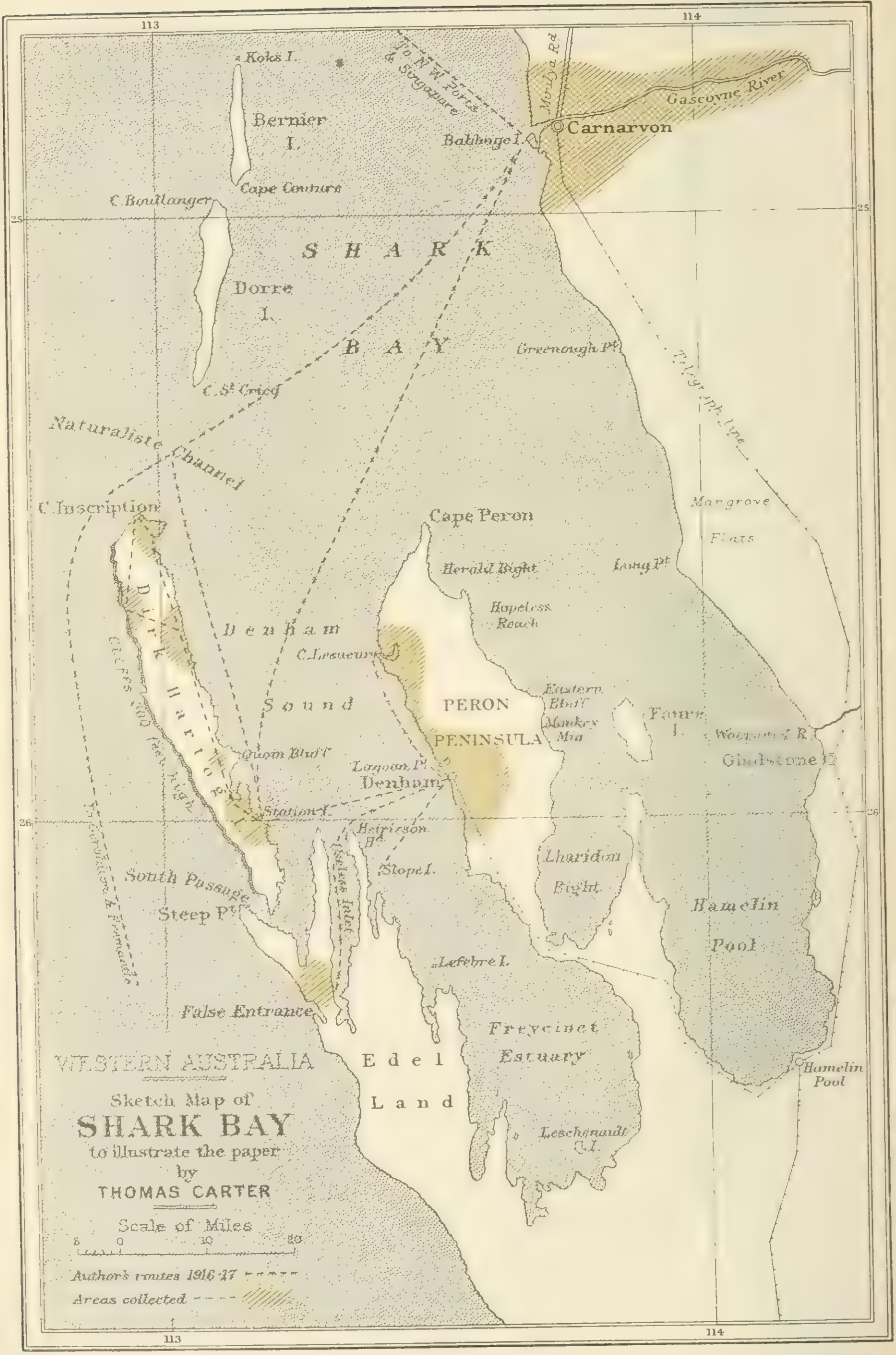
Larus affinis Reinh.

An adult example, obtained on the coast between Chekiang and Foochow, was identified as being of this species by the late Mr. Howard Saunders. Another, an immature skin, was doubtfully stated by him to be of the same species.

XXX.—*The Birds of Dirk Hartog Island and Peron Peninsula, Shark Bay, Western Australia*, 1916–17. By THOMAS CARTER, M.B.O.U.; *with Nomenclature and Remarks by* GREGORY M. MATHEWS, M.B.O.U.

(Plates IX.–XI.)

DIRK HARTOG Island forms the main western boundary of Shark Bay on the extreme west coast of Australia, and is the most westerly land of the island continent, the meridian of 113° E. running almost through Cape Inscription at the north-west corner of the island. The most westerly point of the mainland is Steep Point, immediately below the south end of Dirk Hartog Island, and separated from it by the South Passage, which, at its narrowest part, is barely a mile in



WESTERN AUSTRALIA

Sketch Map of

SHARK BAY

to illustrate the paper

by

THOMAS CARTER

113
114
25
26
Koks I.
Bernier I.
Cape Couture
C. Boullanger
To N.W. Ports & Singapore
Babbage I.
Carnarvon
Moolya Rd.
Gascoyne River
SHARK BAY
Dorre I.
Greenough Pt.
Telegraph Line
C. St. Cricq
Naturaliste Channel
C. Inscription
Cape Peron
Mangrove Flats
Herald Bight
Long Pt.
Hopeless Reach
Dirk Hartog I.
Cliffs 300 feet high
Denham Sound
C. Lesueur
PERON PENINSULA
Eastern Bluff
Monkey Mia
Faure I.
Wooramel R.
Gladstone
Quoin Bluff
Lagoon Pt.
Denham
Station I.
Heirisson Pt.
Slope I.
Useless Inlet
Tricolour & Fremantle
South Passage
Steep Pt.
Lharidon Bight
Hamelin Pool
Lefebre I.
False Entrance
Freycinet Estuary
Edel Land
Leschenault C.I.
Hamelin Pool
Scale of Miles
5
0
10
20
Author's routes 1916-17
Areas collected

width (see Pl. IX.). Cape Inscription is about ten miles further west than Steep Point. The island is about fifty miles in length, and four to four and a half in width, with an area of 153,000 acres. The west side is bold and precipitous, with deep water close to the cliffs, which, at Herald Heights, attain a height of 300 feet or more. There are many blow-holes of large size along these cliffs, and with a heavy westerly sea rolling in, a scene of great grandeur is presented. The roar of the largest blow-hole can be heard, and the volume of water and spray thrown up above the cliff-top can be seen, at a distance of several miles.

The high western side of the island slopes down to the eastern coast, which is mostly low and sandy, the most prominent headland there being Quoin Bluff, where are low cliffs. There is very little level ground anywhere, excepting a few dry, salt, samphire marshes, locally known by the aboriginal name of *Bérrè-dà*. The prevailing vegetation is scrub, of varying height up to twelve or fifteen feet, composed mostly of varieties of Wattles (*Acacia*), with some Saltbushes, *Fugosia, Hibiscus*, etc. There seem to be only a few small patches of scrub, through which it is really hard work to force a way, and they are formed of a species of hard Acacia wood, locally known as of the "Raspberry Jam" (aboriginal *Wee-àrra*). There are no trees, water-courses, or pools on the island, but excellent water is procurable at many places near the beach at a depth of a few feet below the white sand. At others water has been obtained by sinking well-shafts through very hard rock. The deepest well on the island is about 64 feet, and the water was first located there by putting down a bore. The island has been utilized as a sheep-station (leased from the Government) for about forty years.

Historically, Dirk Hartog Island is one of the most interesting places in Australia, as Cape Inscription is where the first authenticated landing by Europeans was made. On 25 October, 1616, Dirk Hartog (or Hartochsz), in command of the Dutch vessel 'Eendragt' or 'Eendracht' (*i. e.* Concord), outward bound from Holland to the Indies, entered Shark Bay and gave his name to the island upon the western side of the Bay. The name "Dor Eylandt" or "Dorre Eylandt" (*i. e.* Barren Island) was then, or subsequently, given to the island at the entrance of the Bay about fifteen miles to the north of Dirk Hartog. A tin plate, inscribed with the name of the ship, date of landing etc., was nailed to a post on the top of the cliff, near where Cape Inscription Lighthouse now stands, by Dirk Hartog. In 1697 Willem De Vlaming, who visited this locality, took the original plate down, which he forwarded to Batavia, and thence to Holland for safe keeping, putting up another in its place. The original plate of Dirk Hartog was discovered in the State Museum at Amsterdam in 1902 by Mr. De Balbian.

In 1619 a fleet of eleven vessels, under the command of Frederic van Houtman, discovered and named the Houtman Abrolhos group of islands, about 150 miles south of Steep Point. John van Edels was super-cargo on one of the ships, and the mainland between Shark Bay and Champion Bay (south) was named "Edel Land" after him. The coast north of Shark Bay, to about Point Cloates or the North-west Cape, had been named "Eendracht's Land" by Dirk Hartog after his ship when he sailed north from Shark Bay in 1616.

On 17 September, 1627, the ship 'Wapen Van Hoorn' sighted Eendracht's Land near Dirk Hartog Roadstead, and in 1629 some Dutch vessels touched on the west coast of Australia in the neighbourhood of Dirk Hartog Roadstead.

On 1 August, 1699, the English buccaneer, William Dampier (who had visited King's Sound in the northern Kimberley district of Western Australia, in 1688, in the ship 'Cygnet') entered Shark Bay in the ship 'Roebuck' and gave the Bay its present name. He spent eight days in a fruitless search for water, and then sailed north for the same purpose, and was "much disgusted with the extreme sterility and waterless aspect of the coastal country." Apparently he never went inland, and probably never tried digging in the white sand-drifts along that coast, where excellent water is obtainable in many places at a depth of from one to ten feet. He also missed the mouth of the great Gascoyne River, which he must have passed.

The next mention of Shark Bay is when three French vessels commanded by Commodore Baudin explored part of it about 1802.

In 1818 a minute geographical survey of Shark Bay was made for the first time by M. Duperrey, who accompanied Captain Louis de Freycinet in the ship 'Uranie.' Quoy and Gaimard were the naturalists attached to the expedition and probably made good collections, but these were lost by shipwreck and little was published of their results. They note, however, that many strange birds were met with, especially indicating two of three species. Two were figured and described, and these were the original incitement of the expedition last year, as the birds had never been met with since, and recently doubt had been cast upon their existence.*

Shark, or Shark's Bay, as it is usually called, is situated between the meridians 113°–115° E. and the parallels of 24°–27° S. It is 150 miles in length from north to south, and 70 miles in width, measuring from Dirk Hartog Island across to the mainland. The southern part of the Bay is divided by the Peron peninsula into two long reaches—Freycinet Estuary and Hamelin Pool. The Peron is 50 miles in length, north of the narrow neck, as shown on the map accompanying this paper (Plate IX.), and a great part of it is ten to twelve miles in width. The neck of land, mentioned above, is very little above sea-level and, with heavy north-west winds blowing straight down the bay, it is occasionally actually submerged for a short space of time. The area of the Peron peninsula is 213,000 acres, and it is also a sheep-station. Dorre and Bernier Islands, in a line almost north of Dirk Hartog Island, form, with the latter, the western boundary of the bay. As the map shows, there are many remarkable long narrow inlets in the southern part of it. These are mostly of very shallow water, full of sand-banks, and the same applies to the greater part of Shark's Bay. The chief industry is pearling, and a fleet of cutters of various sizes and tonnage is constantly at work. The shells are much smaller and of less value than those from the north-western pearling-grounds, but they are rich in pearls. On account of the shallow waters, there is no diving for the shells; these are obtained either by collecting them off the banks by means of dredges, towed from the boats as they sail over them, or they are gathered by hand direct, by men wading at low tides, and picking up the shells from the marked and surveyed "banks" of the respective owners, who pay an annual rent and license to the Government for the right to do so. Most of the employees are coloured men of many nationalities.

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* In the 'Scottish Geographical Magazine,' vol. xxxiii. (March 1917) there appeared an article (pp. 120–121), "Is Dirk Hartog's Voyage to West Australia Historical or Mythical?" by J. Bryant. There it is stated that, owing to the tercentenary of Dirk Hartog's discovery, attempts had been made to trace the history of the voyage, with the quite unexpected result that no confirmation, but rather the opposite, had been achieved. At present further investigation is necessary, but there are certainly grave defects in the story of Dirk Hartog's discovery, and it seems probable that it will later be discarded. [G. M. M.]

The climate of Shark's Bay is one of the most even in the world, the mean annual temperature being about 65° F. Frosts are practically unknown. The annual rainfall varies from nine to twelve inches, and it is too uncertain for agricultural purposes. The rainfall on Dirk Hartog Island is rather more than that on the Peron, as many showers coming off the Indian Ocean are precipitated there first. The wet season is in the winter months (April to October), when the climate may be called perfect. In the summer months, heavy south to south-west gales prevail ("southerly busters") for weeks together, and, although they keep down the temperature, they are much too strong to be pleasant. The records of temperature taken at the Flint Cliff telegraph-station, on Hamelin Pool, in the south-eastern corner of the bay, are almost invariably ten degrees higher than those from Carnarvon, which is 120 miles farther north. The township of Denham (formerly called Freshwater Camp), situated on the mid-west coast of Peron peninsula, is the "hub" of Shark's Bay, and has a population of about 200, mostly coloured, and engaged in pearling.

The vegetation of the Peron peninsula is mostly scrub, of different species from those growing on Dirk Hartog Island, where some of the bushes (more particularly one large species of Wattle) seem peculiar to that island. The growth on the Peron is generally denser, taller, and of harder wood than on the island, and there is much country through which it is very difficult to force one's way, either on foot or riding. There is a considerable area of country in both the above localities, where various species of the prickly Spinifex (*Triodia*), or Porcupine grass, grow in large bunches, which sometimes attain a height of four feet and are many yards in diameter. The main features of both these localities are loose sand (either white or red) and ranges of sand-hills, which, combined with the scrub and the heat radiating from the sand, in the hollows sheltered from the wind, makes a long tramp somewhat tiring work, unless it is immediately after a heavy shower of rain, which consolidates the sand for a day or two. An immense "drift" of white sand has moved right across the island from the west coast to the east, and appears to be continually spreading and enlarging its area. There are some mangrove lagoons on the Peron, one of which is of considerable size, and winds many miles inland, but there are none on Dirk Hartog Island. The Peron resembles the island in having no fresh-water courses or pools, and no timber; and it may be mentioned that while I was there last October, a resident of Denham was riding across to the eastern side of the peninsula, when he was thrown by his horse, sustained a fractured thigh, and after painfully dragging himself along the sandy road about two miles back towards the township, in the space of three days (as is proved by the note-book found on his dead body), he died from thirst.

Shark's Bay is much isolated from the mainland, stores and mails being carried by occasional steamers and schooners. A telephone-wire connects Denham with the telegraph-station on the overland line at Flint Cliff, and, owing to the prevailing sand-hilly country, no motor-cars are yet running either on the Peron or Dirk Hartog Island. At the latter place camels are used to do the station carting, and are in general use for such work now all through the north-west of Western Australia, and prove invaluable, especially in droughty seasons. As readers may be puzzled to know how sheep and other stock are taken to or from Dirk Hartog, such as a mob of two or three thousand sheep sold for the meat markets,—they are put on board a lighter (chartered from Denham) at the south end of the island and shipped across the South Passage, a few hundred at a time, to the mainland, and thence driven overland.

It seems remarkable that until last year (1916) no field-ornithologist had "worked" either Dirk Hartog or the Peron since the French expedition in 1818, though Bernier and Dorre Islands have been so visited.

In conclusion, the authors of this paper beg to tender their most sincere thanks to Mr. J. Nicholas, lessee of Dirk Hartog Island, for granting permission to explore it ornithologically, and for the use of his station-house, camels, horses, and cutter boat, in aid of the expedition. To his manager, Mr. G. C. Lloyd, who took a keen interest in it, and helped in every possible way, personally taking me out to likely camps, and moving me to and from them. To Mr. J. H. Mead, of the Peron station, who did the same kind services there, and gave the hospitality of his homestead for several weeks. To Mr. Aldridge, Chief Inspector of Fisheries in Western Australia, for obtaining permits to take native game and authorizing Mr. Edwards, Inspector of Shark's Bay Fisheries, to help whenever he could, which he did most ably and with gratifying results. Also to the authorities and staff of the West Australian Museum at Perth for their great help in classifying, comparing, and storing specimens; and to many other kind friends too numerous to mention individually.

The number of species and subspecies of birds observed both on Dirk Hartog Island and the Peron peninsula was surprisingly small.

On Dirk Hartog the total was 55, being
Land-birds 38,
Waders and Sea-birds 17.

On the Peron the total was 52, being
Land-birds 32,
Waders and Sea-birds 20.

The following new subspecies are described in this paper:—*Calamanthus c. peroni* from Peron Peninsula, *Oreoica c. lloydi* and *Anthus a. hartogi* from Dirk Hartog. In addition the following four subspecies from Dirk Hartog have been recently described by myself or Mr. Mathews:—*Calamanthus c. hartogi*, *Sericornis m. hartogi*, *Stipiturus m. hartogi*, *Diaphorillas t. carteri*.

The birds mentioned in this paper can by no means be considered a full list of those occurring in the above localities, particularly as I was not in Shark's Bay during June, July, August, and September (except the last three days), and these four winter months are the season when birds are most plentiful in the mid-west region, many species appearing after the winter rains and leaving before the summer begins. No *Zosterops lutea balstoni*, *Wilsonavis tenebrosa christophori*, or *Alisterornis lanioides carnarvoni* were seen in the mangroves on the Peron, although a good lookout was kept for them, nor were any *Haliastur indus leucosternus* observed in Shark's Bay, yet these four birds are numerous in the mangroves south of Carnarvon. Perhaps that is the southern limit of their range.

Dirk Hartog might be called an island of Wrens, as at least ninety out of every hundred land-birds seen are Wrens.

The nomenclature and classification is that of Mr. G. M. Mathews' 'List of the Birds of Australia,' 1913, to which reference should be made.

Dromiceius novæhollandiæ woodwardi.

The Emu was not observed on Dirk Hartog Island, and no records or traces of its having formerly existed there were obtained.

These birds were fairly numerous on the Peron peninsula and breed there. Several were seen in the vicinity of the large mangrove lagoon fifteen miles north of Denham, and also further south. To obtain fresh water to drink they must come in to the sheep and cattle troughs, where they are easily shot; and, as the peninsula is fenced off from the mainland at the narrowest part and has many other subdivision paddock fences, the extermination of those now on the peninsula would seem to be only a question of a few years, although no doubt some birds from outside may succeed in getting over the fences.

Leipoa ocellata ocellata.

No Mallee Fowl were seen on Dirk Hartog Island nor any old nesting-mounds, and no records were obtained, but a few pairs still breed on the Peron peninsula, and young birds recently hatched were brought in to Denham about three years ago, according to reliable authority. Mr. Mead kindly took me out a long way in order to find some nesting-mounds which had been recently used, but, although we rode many miles through very dense and high scrub, we were unable to find them.

In view of the near extinction of this fine species in mid-west (coastal) Australia, I think it well to put on record that, when I was "new-chumming" on the Boolathanna Station, about twenty miles north of Carnarvon, in 1887, Mallee Fowl were abundant in the coastal scrubs north of the Gascoyne River as far as Cape Farquhar, and the station natives used to bring in the eggs to eat. This coastal country was then unstocked and in its virgin state. When asking Mr. Gerald Lefroy (who has his sheep-station near Cape Farquhar), in August 1916, whether he ever saw any Mallee Fowl or "Gnows" (which is the aboriginal name), he said he met with the last live one about 1900, although many of their old nests are still in evidence.

In 1877 I was assisting in droving a mob of 2000 sheep from Carnarvon to Perth along the coast road, and Mallee Fowl were abundant then in the dense sort of Mallee scrub, and other thicket, that extended along the telegraph-line from south of the Wooramel River to Flint Cliff telegraph-station (on Hamelin Pool at south-east corner of Shark's Bay) and twenty or thirty miles south of there. Some of the birds, and scores of their nests, were seen close to the telegraph-line, which was erected along a narrow cleared strip of country. Many bush natives were camped there, having come from further inland on purpose to obtain the eggs of the Mallee Fowl to eat. The season would be about early October. Most of this scrub has now been burnt off, but residents informed me last year that a few pairs of the birds still live and breed there.

Quail sp.? On two occasions a single Quail was seen, but no specimens were obtained, on Dirk Hartog Island.

Storm-Petrel. A single Storm-Petrel, apparently black with white rump, was seen on 25 April, 1916, while sailing in a cutter from Denham to Dirk Hartog. A strong wind and nasty sea prevented its being secured. A similar bird entered the dining-room of the shearers on Dirk Hartog and fluttered about against the window. It also escaped capture. Probably the bird had been attracted by the lighted lamp in the room and entered by the open door. The dining-room was not far from the beach.

Thyellodroma pacifica chlororhyncha. Western Wedge-tailed Petrel.

On 16 November, 1916, through the courtesy of Mr. Edwards, the Inspector of Shark's Bay Fisheries, a visit was made to Slope Island, which is a small rocky islet about fifteen miles south-west of Denham, and particularly interesting, as it is probably the locality where the type-bird was obtained in 1818 by the French expedition, and described by Lesson in 'Traité d'Ornithologie,' 1831.

The islet has rocky cliffs, about 25 feet in height, all round it, and has little vegetation except a few stunted bushes that grow only close to the sea, and bear yellow saltish berries as large as a small gooseberry, which the aborigines call "Tálbyne." These bushes grow in large and dense masses, and being kept down in height by the prevalent strong winds, are so rigid as to allow one to walk about on their upper surfaces. The ground beneath these bushes was mostly rock, but there were small patches of sand here and there, and on these, below the bushes, many Western Wedge-tailed Petrels were sitting on their single eggs. We had been told at Denham that it was a common practice for the men in passing pearling boats to call at this island to obtain "Mutton-birds'" eggs at the breeding-season—November to Christmas. The writer expected to find the eggs laid in deep burrows, as is customary with so-called Mutton-birds, and had taken a hooked stick with which to rake out any eggs, but this was not required. Our attention was first attracted by the extraordinary noises that the birds made, and which resembled the whining and barking of several puppies. Peering down through the bushes, as we lay full length on them, we could see several of the Petrels shuffling about below us, but out of arm's reach. Most of the birds were covering and protecting an egg, and seemed to move about, to some extent, keeping the eggs hidden beneath them. They were most devoted to them, and could not be persuaded to abandon them, as of course specimens were required for identification and comparison with those of other species. Not being able to reach a bird or an egg, Mr. Edwards got excited, and, before I could prevent him, shot one of the birds with my ·410 gun, at a range of a few feet, and succeeded in badly smashing one of its wings, but a passably good skin was made of it afterwards. Several of the birds were eventually captured alive with our hands. They bit and scratched very severely, and constantly uttered their peculiar noises.

The legs and feet of the birds were bright carmine in colour, and quite unlike those of any other species of

Mutton-bird obtained by me in former years, either at Point Cloates, or Breaksea and other islands off the south coast of Western Australia *.

Searching all round the bases of the cliffs, several more eggs were found in miniature caverns with sandy floors. No birds were sitting on them, as they had probably been scared by the shooting and noises above, and had gone away. It was much easier for any birds to fly away from their eggs, than it was for those beneath the dense tangled bushes. The rocky nature of the island would prevent burrowing to any extent. We searched the whole of it pretty thoroughly in a short space of time, owing to its small size, and saw no burrows. The laying season had evidently only just commenced, as all the eggs examined were quite fresh. There was no nesting material whatever below any of the eggs. From what I could learn from the residents of the locality, Slope Island is the only one from which they collect Mutton-birds' eggs, although there are Lefebre Island, about fifteen miles south of Slope Island, and Leschenault Island, twenty-five miles south of it, at the south end of Freycinet Estuary. Heavily southerly winds prevented me from visiting the last-named islands, as I had hoped to do, and as the anchorage is unsafe at Slope Island, only a few hours could be spent there.

Hydroprogne caspia strenua.

The Australian Caspian Tern was not uncommon at Dirk Hartog and the Peron.

Thalasseus bergii gwendolenæ.

The West Australian Crested Tern was common both at Dirk Hartog and the Peron.

Sternula nereis horni.

Several White-faced Ternlets were seen at the large mangrove lagoon on the Peron.

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* In 'The Ibis' for 1902 (p. 204) Mr. R. Hall states that the legs and feet were fleshy white in examples breeding on the Houtman Abrolhos Islands.

Melanosterna anæthetus novæhollandiæ.

A good many Australian Bridled Terns were seen at Slope Island on 16 November, 1916. A single fresh egg was found on the bare ledge of a cliff there, about twenty feet above the sea. Attention was attracted to it by seeing one of the birds constantly flying to the ledge and hovering close to the egg.

Bruchigavia novæhollandiæ longirostris.

Western Silver Gulls were plentiful in all parts of Shark's Bay. Scores of them were to be seen daily around the homestead on Dirk Hartog Island, many of them waiting for a chance of stealing some of the food thrown to the fowls, and more of them in the vicinity of the station "gallows," where sheep were killed daily when shearing was in progress. The birds paid their attention most to eating particles of fat off the entrails and skins of the slaughtered sheep. As scores, and sometimes hundreds of lambs were daily earmarked, castrated, and tailed in the sheep-yards at shearing-time, the large mob of these Gulls that was always in the vicinity of the buildings would, as soon as they observed lambs being so treated, perch in long rows on the top rails of the sheep-yards, in close proximity to the scene of operations, waiting to feed on the testicles of the lambs as soon as the latter had all been let out of the yards, and the operators gone away. Mr. Lloyd, the manager, informed me that numbers of these Gulls breed on Egg Island, near Quoin Bluff, on the mid-east coast of Dirk Hartog. As many recently fledged birds of the year were seen about the station, still being fed by the parent birds, on September 28, the breeding-season is probably in August.

Gabianus pacificus georgi.

The Western Pacific Gull was fairly common about Dirk Hartog and the Peron. The mature birds are known as "Mollyhawks" by the residents, who will not believe they are the same species as the young birds in their brown plumage.

Arenaria interpres oahuensis.

A few Turnstones were seen on the east coast of Dirk Hartog towards the end of May, 1916. One was shot out of a party of three.

Hæmatopus ostralegus longirostris.

The Pied Oystercatcher was common on the sandy beaches both at Dirk Hartog and the Peron. The residents frequently shoot them for cooking purposes.

Hæmatopus niger bernieri.

The Western Black Oystercatcher was not so numerous either on Dirk Hartog or the Peron as the Pied Oystercatcher, and, as usual, was generally found on rocky beaches.

Zonifer tricolor gwendolenæ.

Black-breasted Plover were, on several occasions, seen and heard, out of gun-shot, on a fairly open hard flat at about the middle of Dirk Hartog Island. No examples were obtained. This species was not observed on the Peron.

Squatarola squatarola hypomelus.

A good many Eastern Grey Plover were seen on the beach at Dirk Hartog, during my second visit there, early in October, 1916; also on the beach and at the big mangrove lagoon on the Peron later on in the same year.

Pagoa leschenaultii.

The Large Sand-Dotterel was not nearly so common on Dirk Hartog as it is about Carnarvon and Point Cloates. A few odd birds only were seen, in May and October, and some on Peron in December.

Leucopolius ruficapillus tormenti.

A few Pale Red-capped Dotterel were seen on Dirk Hartog at the end of May.

Numenius cyanopus.

Australian Curlew were noted both on Dirk Hartog and the Peron from early October and during the next three months.

Phæopus phæopus variegatus.

Eastern Whimbrel were much more numerous on Dirk Hartog and the Peron than the Curlew. On one occasion several Whimbrel were seen in the heat of the day, perched on the top of some fencing-posts in thick scrub, about half a mile from the beach. One day, when I was concealed in some mangroves near the beach watching Waders feeding, especially a Whimbrel that was coming towards me, the bird caught sight of me, stopped feeding, and after remaining in a rigid attitude for a few seconds, it ran a few yards, and got on to a mass of dry, brown and white striped seaweed just above high-water mark. Then crouching its head and neck, it stood quite still. Taking my eyes off it for a short space of time, the bird could not be again "picked up" until binoculars were used to locate it. Apparently the bird deliberately selected this heap of seaweed for the sake of the protective colouring, which exactly corresponded with its general plumage.

Vetola lapponica baueri.

Barred-rumped Godwits (eastern form) were plentiful on Dirk Hartog Island and the Peron.

Actitis hypoleucus auritus.

One bird only of the Eastern Common Sandpiper was seen on Peron beach; it was at the same place on several days in November, 1916.

Glottis nebularius glottoides.

One specimen of the exceedingly wary Eastern Greenshank only was seen, and shot as it was feeding on mangrove mud-banks on the Peron. It came within range of me as I kept well concealed among the mangroves.

Pisobia minuta ruficollis.

Red-necked Stints were seen on the Dirk Hartog beaches in April and May, and also there and on the Peron from October 1916 to January 1917. A party of six were observed through binoculars on May 13, and some of them had distinct rufous collars.

Limnocinclus acuminatus.

Sharp-tailed Stints were common in mangroves on the Peron in November and December.

Erolia ferruginea chinensis.

Eastern Curlew Sandpipers were seen, in company with other waders, on the mud-flats of the large mangrove lagoon on the Peron.

Burhinus magnirostris broomei.

Western Stone-Plovers were not uncommon on Dirk Hartog, but, as usual, were rarely seen in daytime, although their wailing notes were heard at most of my camps; I was anxious to obtain specimens of these birds, as their footprints appeared to be unusually small. No specimens, however, were obtained, although one camp-out was made on purpose to attain this object, at a locality where the station employees said these birds were often seen. Not one of these birds was observed on the Peron, although they occur there.

Austrotis australis derbyi.

Northern Bustards were plentiful both on Dirk Hartog and the Peron.

Demiegretta sacra.

A few Reef-Herons of both the blue and white forms were seen on Dirk Hartog Island and the Peron.

Hypoleucus varius perthi.

Pied Cormorants were abundant on Dirk Hartog Island and the Peron, and when sailing across Denham Sound, between the above-mentioned localities, numbers of the birds were seen fishing all the way across (the distance from shore to shore is from 15 to 20 miles).

Catoptropelecanus conspicillatus westralis.

One or two Pelicans were occasionally seen fishing in the shallow sea at Dirk Hartog Island, and hundreds were observed in the large mangrove lagoon on the Peron. Years ago Pelicans bred in a "rookery" on Pelican Island in Shark's Bay, and probably still do so.

Circus assimilis rogersi.

The Spotted Harrier was only seen on one occasion on Dirk Hartog Island, viz. 12 October, 1916, and it is a bird that is not easily overlooked. This is the only record in the course of my two visits to that island, from April 25 to May 26, and from September 27 to November 11, 1916. Several were observed on the Peron between 11 November, 1916, and 19 January, 1917. It may here be mentioned that the smaller Raptores were distinctly scarce in both these localities. The absence of timber is probably one reason for this, and another may be that the prevailing dense scrub and thicket afford safe shelter for the resident birds, which are, for the most part, of small size, and usually reside in the bushes.

Urospiza fasciata cruenta.

Lesser Goshawks were very rarely seen on Dirk Hartog. One was shot there that had been paying attention to the station fowls for some days. They were not noted on the Peron.

Accipiter cirrocephalus broomei.

One Sparrow-hawk was seen on Dirk Hartog. None on the Peron.

Uroaëtus audax carteri.

No Wedge-tailed Eagles were noted on the Peron, but they are still fairly common on Dirk Hartog, although they are systematically shot or poisoned, and the eggs and young destroyed in the nests, which are easy of access, being, in default of timber, built in the tops of the "We-arra" stunted trees previously mentioned, so the nests are only from eight to twelve feet above the ground. The breeding-season is much later on Dirk Hartog than in the Gascoyne and Point Cloates districts, where eggs were generally laid late in May. July and August are when eggs are looked for on Dirk Hartog. Small young were seen in the nest there on September 20, and a bird almost full-grown was brought in to the station on October 24.

Cuncuma leucogaster.

The White-bellied Sea-Eagle was fairly common on Dirk Hartog Island, although it is shot whenever a chance occurs to do so. The manager of the island station informed me that these birds are very destructive to lambs, hence their persecution. As they doubtless mostly breed on the vast cliffs of the west coast, they may be able to hold their own for many years. There is an eyrie on the east coast of the island at Quoin Bluff, where eggs were laid last year. A bird of the year was shot at the station 7 October, 1916, as it was hovering above the poultry-run.

A few of these birds were seen on the Peron.

Ieracidea berigora occidentalis.

Only one Brown Hawk was seen on Dirk Hartog; it was shot on November 9 as it was in very peculiar plumage, with patches of cream-colour interspersed with the usual brown.

This species was not noted on the Peron, which is remarkable, as it is by far the commonest bird of prey in Western Australia.

Cerchneis cenchroides unicolor.

The Western Nankeen Kestrel was fairly numerous both on Dirk Hartog and the Peron, and many more of them were seen on the island than on the mainland. This was probably because, on my first visit to the island, the greater part of it was simply swarming with domestic mice. The station-house was alive with them, and all the sandy ground from there to the north end of the island was pitted with their foot-prints. They were a great nuisance at my camp, as they got among the food and could not be kept out of my blankets when I was sleeping. The Kestrels on Dirk Hartog must breed in the crevices and on ledges of the cliffs. They were always shy and difficult to approach.

On the Peron, I was shown a heap of seaweed under a bunk in a small corrugated iron hut, erected for the convenience of the station employees. A pair of Kestrels utilized this seaweed as a nest, eggs being laid on it last year. The seaweed, no doubt, was blown inside the hut by the wind, as the hut was on the edge of the beach. In another hut, but seldom used, a Kestrel had laid its eggs on the top of the heap of wood ashes in the fireplace. The birds used the chimney to go in or out of the small building.

Pandion haliaëtus cristatus.

The White-headed Osprey was fairly common on Dirk Hartog Island. Several nests were seen on rocky bluffs of the east coast, and they were being repaired and renewed for the coming breeding-season from the middle of May. On the 15th of that month I was interested in watching an Osprey drive off a White-bellied Sea-Eagle that had approached the former's nest. The Osprey kept rising above the Eagle high up in the air, and every time it swooped down at it the latter turned itself edgeways, opposing the edge of its upper wing to the Osprey, so that the Osprey was unable to do any damage to its larger opponent. On 1 October, 1916, a young Osprey almost ready to fly was taken from its nest by one of the shearers and brought in to the station.

A few Ospreys were observed on the Peron, but they were not numerous.

Neonanodes petrophilus petrophilus.

Western Rock-Parrots occurred on both Dirk Hartog Island and the Peron, but could not be called numerous. Only two birds were seen on the first visit to the island, which means that I was there a month without observing any others. This pair of birds settled on the ground May 21, just in front of the homestead, a few feet above high-water mark. The weather was very unsettled at the time, and showery. They were both females: one was in very ragged plumage and with only one tail-feather, the other was in fair plumage. Mr. Lloyd, the station manager, informed me that these birds breed regularly in the crevices of a rocky point (Notch Point) three miles north of the homestead, but although I examined this place several times on each visit to the island, not a single bird was seen there. On the second visit, a few of these Parrots were seen on different occasions at a well about a mile from the beach on a large open stony flat. They went there in order to drink from the sheep-troughs. Half a mile distant from this well, some clumps of the "We-arra" trees grew among other scrub. Small parties of three to five Rock-Parrots were seen in these stunted trees on several dates in October, 1916. They were evidently eating the hard seeds out of the long pendent pods hanging in the branches, and were also feeding on grass-seeds on the ground in the vicinity. Nearly all these Parrots were in poor and ragged plumage, and showed no signs of breeding either in May or October–November. Most probably the breeding-season is in July or August, which is the time when most birds lay in mid-west West Australia.

When visiting Slope Island, about fifteen miles south-west of Denham, on 16 November, 1916, we quite expected to find Rock-Parrots' eggs there, as the pearlers all said this was their main breeding-place in Shark Bay, but only two of the birds were seen, and they did not seem to be breeding. A small flock of about ten of these Parrots, and some smaller parties, were in the mangroves at the big lagoon on the Peron on November 30, and on several occasions when out with gun in the thickets near Denham, one or two pairs or single birds were seen. Comparison of Shark Bay Rock-Parrots with skins of the same species in the Perth Museum from the south-west of West Australia, shows no appreciable difference between them.

Eurostopodus argus harterti.

Although no Spotted Nightjars came under my own observation, Mr. Lloyd, manager of Dirk Hartog Station, had in his possession two undoubted eggs of this species, which he said he took from off the bare ground, under a bush, on a rather stony ridge on the island, some years before my visit. He saw the bird leave the eggs, and on more than one occasion had flushed a Nightjar from the same ridge.

Micropus pacificus pacificus.

Several White-rumped Swifts were seen near Denham, 13 January, 1917.

As recorded in "Birds of the North-west Cape" (Emu, iii. p. 95), the appearance of this species in the mid-west invariably denotes unsettled weather in the north-west—there was a heavy gale of wind with rain at Broome about the above date.

Heteroscenes pallidus occidentalis.

Only one Western Pallid Cuckoo was observed on Dirk Hartog Island, and this was a fledged bird of the year shot on 20 October, 1916, for identification. This species was not seen on the Peron, which is remarkable, as it is usually one of the commonest winter visitors about the Gascoyne and mid-west districts, and they are such noisy birds they cannot be overlooked. If I had been in Shark Bay in the winter months proper—June, July, August,—probably more Cuckoos would have been seen. There were plenty of them from Carnarvon to North-west Cape during those months last year (1916).

Lamprococcyx plagosus carteri.

Only two Western Bronze Cuckoos were seen on Dirk Hartog Island, both fledgelings. One was shot 28 September, 1916, as it was flying about in the scrub and being fed by two female *Nesomalurus leucopterus* (Black-and-white Wrens). They were under observation with binoculars for some time, and this must be a new record for host of this Cuckoo. The other fledgling was shot near the same place on 19 October, 1916. No foster-parents were visible, but a *Ptilotis sonora* was making determined attacks on the young Cuckoo. No Bronze Cuckoos were seen on the Peron.

Hirundo neoxena carteri.

Western Welcome Swallows were common both on Dirk Hartog Island and the Peron, and were breeding under the verandahs.

About 15 May, 1916, when camped at Sandy Point, twenty-five miles north of Dirk Hartog Station, Swallows were there in hundreds, and in greater numbers than ever previously seen by me.

Cheramœca leucosternum leucosternum.

Western Black-and-white Swallows were only observed on the Peron peninsula, where a few pairs were breeding in low cliffs of congealed sand a little south of Denham and also on sandy cliffs twelve miles north.

Melanodryas cucullata picata.

A few pairs of Pied Robins were seen on Dirk Hartog Island and Peron peninsula. Fledged young were noted in October on the island.

Rhipidura flabellifera preissi.

Western Fantails were not observed on Dirk Hartog Island, but a few were seen in mangroves on the Peron.

Leucocirca tricolor picata.

Western Black-and-white Fantails were fairly common both on Dirk Hartog and the Peron. At the large mangrove lagoon on the Peron, on 24 November, 1916, a nest, containing two almost full-grown young, was seen about four feet off the ground, in a mangrove.

Coracina novæhollandiæ subpallida.

A pair only of North-western Black-faced Cuckoo-Shrikes was seen on Dirk Hartog Island, in "We-arra" thicket in April, 1916.

Morganornis superciliosus (subsp. ?).

No White-browed Babblers were seen on Dirk Hartog Island, and they do not seem to occur there, which is remarkable, seeing how ubiquitous this species is throughout the mid-west. Such a garrulous bird is not easily overlooked.

They occur on the Peron, but not commonly, and some were seen, and specimens shot for identification, both there and on Edel Land about fifteen miles south of the South Passage. The birds obtained were larger and had bigger and more curved bills than birds from Carnarvon and further north, and resembled the south-western birds.

Calamanthus campestris hartogi Carter, Bull. B. O. C. xxxvii. 1916, p. 6.

The Dirk Hartog Field-Wren was plentiful on the island, and is quite distinct from the *Calamanthus* occurring on the Peron. The habits and song are the same as those of *C. rubiginosus*, which occurs further north. The birds are mostly found in fairly open scrub, and were not seen in the dense dark growths of the large wattle bushes. The pleasant song is almost invariably uttered when the bird is perched on the topmost twig of a bush, a dead twig seeming to be chosen by preference, and both sexes are often seen in this position. Upon any alarm, as at the approach of some one, the birds dive down into the bush, and either run or hop very rapidly along the ground, and are not easily flushed again. The tail is almost always carried very erect, and when one of these birds is seen for a moment, it can easily be mistaken for an *Amytornis*. Although these birds are usually very shy, they can sometimes be "chirped" close up. One alarm-note is somewhat like the alarm "churr-r-r" of *Oreoica cristata*. Another resembles the "han-han-han" of the English Herring-Gull when heard at a distance. No nests or eggs were discovered, as my second visit to the island (at the end of September) was evidently too late for them. Many fledged young birds were observed on various dates after September 29. In all probability many of this species, and other small birds, had nested after the heavy rains that fell over the district in January, 1916, as the majority of birds occurring in the mid- and north-west areas breed immediately after any heavy rainfall.

Calamanthus campestris peroni, subsp. nov.

The Peron Field-Wren is quite distinct from the Dirk Hartog bird, and is therefore here described as a new subspecies.

Unfortunately, it is impossible to have this bird figured at present, as was intended, owing to the fact that the few specimens obtained were left in Western Australia, with the bulk of the collections made on the trip, to wait safer conditions for forwarding across the seas. It may be mentioned that only a few of the smaller-sized novelties obtained were sent to England by registered letter-post, and had they been forwarded by parcel post, they would have been lost in the mail-boat on which I travelled, and which was torpedoed in the English Channel. It is hoped that a paper dealing with the birds observed and collected further north than Shark Bay may be published in 'The Ibis' at some future date, when the rest of the collection has reached England.

The specimens obtained of *Calamanthus c. peroni* are quite unlike any of the long series obtained of *C. c. hartogi,* and more closely resemble *C. c. rubiginosus* from Point Cloates and the North-west Cape districts (200 to 300 miles north of Shark Bay) and *Calamanthus c. wayensis* from the Day Dawn district (300 miles south-east and inland from Shark Bay).

A careful comparison of skins in the Perth Museum from these two districts with the Peron birds, shows that the Peron birds are much more rufous in general colouring than either of them, and are especially of a richer rufous on the crown. The white superciliary stripe is much more pronounced in *C. c. peroni,* as also are the striations on the mantle.

The Peron birds have larger and stronger bills, and are bigger-made birds than those from Point Cloates or Day Dawn.

Calamanthus campestris hartogi is much duller in general colour than *C. c. peroni,* and is a smaller bird, resembling more the form from Dorre Island (*C. c. dorrie*).

A single female specimen of *Calamanthus,* obtained on the mainland (Edel Land), at the south end of Useless Inlet, differs from both *C. c. hartogi* and *C. c. peroni,* but most resembles the former. A series of skins is required from there before a definite opinion can be formed.

The subspecies on the Peron was not nearly so common as the form on Dirk Hartog. Their habits and song are similar, but the Peron birds appeared to be much more wary and difficult to obtain. Sometimes they run along the ground, with tail in a horizontal position, at great speed, on the bare spaces of sand between the bushes, and dodge about so that it is often difficult to keep them in sight, even when one runs after them. At other times they hop with tails erect, and on several occasions, having only caught a momentary glimpse of a bird, I mistook it for an *Amytornis*.

The specimens were obtained between 20 November, 1916, and 18 January, 1917, and showed no signs of breeding.

No *Calamanthus* has ever been observed in the vicinity of Carnarvon at the mouth of the Gascoyne River, where I have systematically observed and collected birds since 1886. Nor has any *Calamanthus* been seen south of Mauds Landing (160 miles north of Carnarvon), where *C. c. rubiginosus* appears to find its southern coastal limit.

Ephthianura albifrons westralensis.

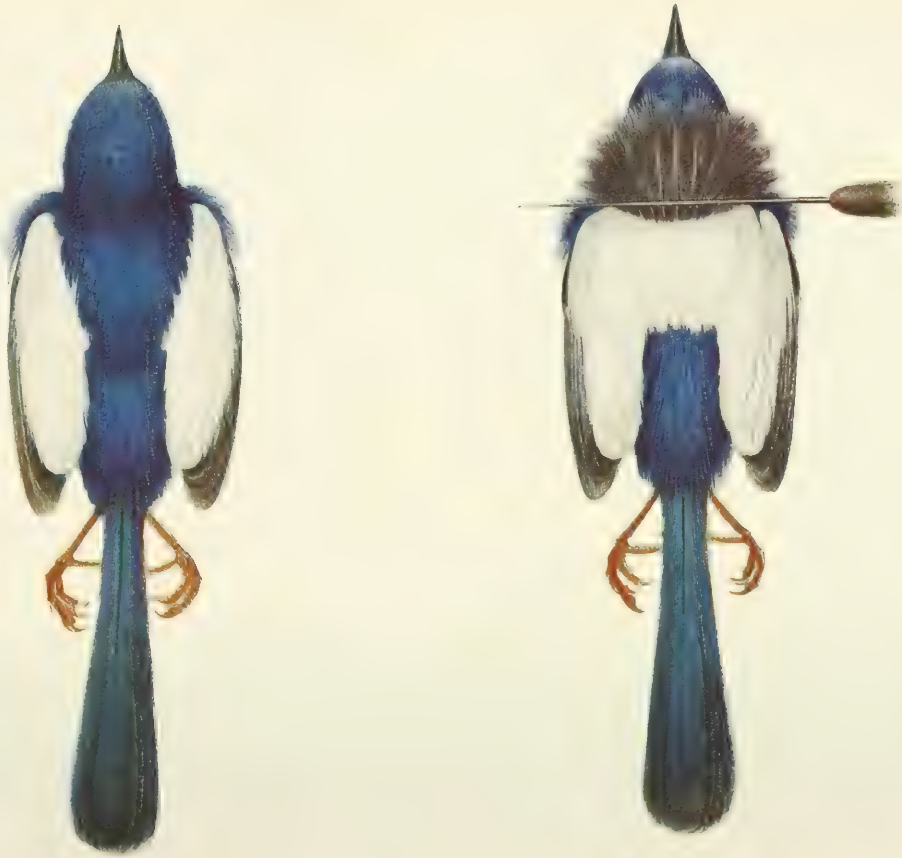
White-fronted Chats were only observed at one locality on Dirk Hartog Island, viz., the open flat around the west well, three miles from the homestead. A few small parties of these birds were always in the vicinity of this well. They were not seen on the Peron.

Parephthianura tricolor assimilis.

These Tricoloured Chats were only seen once on Dirk Hartog Island, viz. on 1 May, 1916, at the Cape Inscription Lighthouse, at the extreme north end of the island. One bird was shot for identification from a small party of them. A heavy north-east gale was blowing (*i. e.* off the mainland). This species is very common about the Gascoyne and further north, after either winter or summer rains. It was not seen on the Peron.

Acanthiza sp.?

No *Acanthiza* was observed on Dirk Hartog Island, which is remarkable, as the prevailing scrub there suggests a good habitat.



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HALLORNIS CYANOTUS

An *Acanthiza*, species not determined, was fairly common in the Peron peninsula scrubs. To me it appeared to be *A. uropygialis,* but as no skins of the series obtained have yet reached England, notes on them must be deferred for the second paper.

Sericornis maculatus hartogi Carter, Bull. B. O. C. xxxvii. 1916, p. 6.

This new Scrub-Wren was the commonest bird on Dirk Hartog Island. Almost every bush of any size seemed to hold one or two, and on very windy days (which often occur in the summer months), when small birds keep in the shelter of the scrub, one has only to sit down under a bush, squeak with one's lips, and one, or a pair of this species, will almost invariably appear at once. They are excessively tame, and will hop about among the twigs within a foot of one's face, often uttering a scolding note like "tchut, tchut." At other times they have what appears to be an alarm-note like "pee-wee-wee."

What seems to be their song is a musical trilling, resembling that of the British Grasshopper-Warbler.

Many fledged young were seen after the end of September.

Scrub-Wrens also occurred on the Peron peninsula, but were not nearly so plentiful as on Dirk Hartog Island. Their habits and notes were the same.

No Scrub-Wrens have ever been observed by the writer in the Gascoyne district or further north.

Hallornis cyanotus. (Plate X.)

Malurus leucopterus (nec Dumont), Gould, Bds. Australia, iii. pl. 25 ; id. Handb. Birds Austr. i. 1865, p. 330.

Malurus cyanotus Gould, Handb. Birds Austr. i. 1865, p. 331.

Malurus leuconotus Gould, P. Z. S. 1865, p. 198 ; id. Handb. Birds Austr. i. 1865, p. 332 ; id. Birds Austr. folio, Suppl., pl. 24.

As the original *Malurus leucopterus*, which was discovered on Dirk Hartog Island by the French expedition in the year

1818, was re-discovered by me last year (1916), the confusion which has so long existed between *M. leucopterus* and *M. cyanotus* is now satisfactorily cleared up, as the original species, of which the type has been lost for 98 years, proves to be a black and white, and not a blue and white form. The remaining point still in dispute is whether there is a Blue and White, White-backed Wren, in addition to the well-known Blue and White, Blue-backed Wren. It is my belief that these two species are the same, and I will give my reason for this.

White-winged Wrens, *i. e.* the blue and white form, were not seen anywhere on Dirk Hartog Island, and apparently do not occur there, but they are on the mainland immediately south of the island, so that it appears that the narrow strip of water called the South Passage, which at one place is barely a mile in width and about two and a half fathoms in depth, proves an insuperable barrier to these small birds.

Mr. Edwards, Inspector of Fisheries for Shark's Bay, who wished to investigate the vicinity of the False Entrance (which at times has been mistaken by the skippers of passing vessels for the South Passage, and which it much resembles from the sea), asked me if I would care to accompany him on a trip up Useless Inlet for this purpose. As I was very anxious to visit the mainland there (Edel Land) and find out whether it was the Black and White, or Blue and White Wren which occurred there, I at once accepted the offer, and we sailed in the Government cutter on 11 December, 1916, from Denham, rounded Heirisson Head, and sailed about thirty miles up Useless Inlet, beyond which distance the water was shallow. We had an afternoon ashore with guns, and the whole of the next day, in which time we traversed a good deal of the country (see map). Many *Hallornis cyanotus* were seen, and a male example was shot to prove the species. There were no signs of any Black and White Wrens in that locality.

Hallornis cyanotus was observed on different parts of the Peron, but was not common at the time of my visit there, viz. November 10 to January 19. This species is most plentiful in the Gascoyne and Point Cloates districts in the winter months, after rain. A male bird shot on the Peron (November 28) appeared to be breeding then, but other males were mostly changing plumage about that date, and through December and January. Two males in full breeding-plumage were noted on 12 January, 1917.

In Gould's folio edition 'Birds of Australia,' vol. iii. plate 25, and 'Handbook of the Birds of Australia,' vol. i. p. 331, the Blue and White-winged Wren with a blue back is described under the name of *Malurus leucopterus* (Q. & G.). Gould stated that he was doubtful whether this was the same bird as that figured by Messrs. Quoy and Gaimard (though first described by Dumont) in the 'Voyage de l'Uranie,' and, in the event of his bird proving to be different (which has now been shown), he proposed the name of *Malurus cyanotus*, which name must now stand. Gould also described a Blue and White-winged Wren with a white back under the name of *Malurus leuconotus*, but said it was "very similar" to *M. leucopterus*, and he apparently described it from a single stuffed male specimen (or skin) in the possession of Mrs. Craufuird, of Budleigh Salterton in Devon. Mr. A. J. North, in his 'Nests and Eggs of Birds breeding in Australia and Tasmania,' p. 217, says he is by no means certain that the two species are distinct. In any case, specimens described under both names have been obtained, sometimes in the same locality, right across Australia from west to east—in New South Wales, Victoria, South and West Australia.

Some years ago I noticed that the blue feathers in the interscapular region in these birds are really long pendent feathers growing on the *base of the back of the neck*, and if these are raised by a pencil, white feathers will be observed growing beneath them, right across the back (*vide* Plate X.). The pendent blue feathers overlap them in triangular form, and hang down over the mid-lower back. Many specimens obtained in various parts of mid-west Australia have been examined in the flesh, immediately after shooting, and all had white feathers underneath the blue, varying in amount according to the season, as these white feathers largely fall out at the moult. Much depends, too, on the making of a skin as to whether these white feathers show or not. At certain stages of the moult the pendent blue feathers may be very scanty, causing more white to show. After examining a long series from various parts of Australia, Mr. G. M. Mathews and myself are agreed that there is but one species, which must stand as *Hallornis cyanotus* (Gould) and of which *Malurus leuconotus* Gould is a synonym.

The Black and White Wren, *Nesomalurus l. leucopterus*, has also a band of white feathers across the back, concealed by pendent black feathers.

Leggeornis lamberti occidentalis.

Red-winged or Western Blue-breasted Wrens were common on Dirk Hartog Island, and were much tamer in disposition than either *Hallornis cyanotus* or *Nesomalurus l. leucopterus* (Black and White Wrens). The full-plumaged males of all three of these species are always much wilder and more wary than the females or immature males, but the adult males of the species now under consideration are tame as compared with the others. Parties of females and immatures can always be "chirped" close up, as long as one remains quiet, and, after a little patient waiting, the adult male can almost invariably be seen lurking in the foliage of a bush behind the rest of his family, and if one still refrains from moving, it will most probably emerge from its shelter and approach to within two or three feet, hopping about in a very confiding way. Sometimes, when I have been watching a party of females and young birds for some time, and turned to move away, I would find the adult male was close behind me. Female birds are distinguished from the immature males by having dull red beaks and lores, and a patch of the same colour round the eye. The immature males lack this red coloration, and have blackish beaks, while their general colouring is darker than that of the females. Females of the Black and White Wren and of *Hallornis cyanotus* also lack the red lores and mark round the eye.

Gould, in his 'Birds of Australia,' has figured the female of *Malurus lamberti* as female of *M. leucopterus* (i. e. *Malurus cyanotus*) and the female of *M. leucopterus* as the female of *M. lamberti.*

Leggeornis lamberti occidentalis is a very silent bird, and I never heard any song from those seen on Dirk Hartog, nor yet from any of the hundreds I have met with in various localities of mid-west Australia, from Shark's Bay to North-west Cape. It seemed as if this species was partial to feeding in the scrub close to the beach, but many family parties were also seen further inland on the island. It was a common occurrence to notice parties composed of female and immature males of both *Leggeornis l. occidentalis* and *Nesomalurus l. leucopterus* feeding together, and it took some practice to be able to distinguish the species and sexes with certainty. Very small, but exceedingly active young birds were seen on 13 October, 1916, having evidently only recently left the nest. Others were noted on subsequent dates, but two adult males, shot on October 21, were certainly not breeding then.

Average measurements of an adult male in inches:—Total length 5·12; wing 1·87; tail 2·75.

Leggeornis lamberti occidentalis was fairly common on the Peron peninsula, but no specimens were observed in the short time spent on Edel Land.

Specimens from Dirk Hartog appeared to be the same as those from the Peron, but the series of skins obtained have not yet been worked out. Comparison of skins from both these localities with skins at the Perth Museum from Bernier Island, prove the former to differ from the last-named.

Nesomalurus leucopterus leucopterus.

After an interval of nearly one hundred years the original *Malurus leucopterus* Dumont, subsequently figured by Quoy & Gaimard, has again been obtained in the locality where the type-specimen was got in 1818, namely Dirk Hartog Island on the west side of Shark Bay in Western Australia. The collection of birds obtained by this French expedition was lost by shipwreck, and ever since it has been impossible for ornithologists to be certain whether *M. leucopterus* was black and white, or blue and white, in general colouring, although the coloured plate of the bird (Quoy et Gaim. 'Zool. de l'Uranie,' pl. 23) was fairly accurate so far as colour is concerned. Gould was doubtful as to whether the blue and white Wrens he obtained in New South Wales were the same as those the French naturalists got on Dirk Hartog, and described the bird under the name of *Malurus leucopterus*, with the proviso that should it eventually prove to be different, the name *Malurus cyanotus* should be assigned to it. This point is now definitely settled.

I landed on Dirk Hartog Island on 25 April, 1916, hoping to obtain specimens of both *Nesomalurus leucopterus* and *Diaphorillas textilis*, but as the former bird had been declared to be extinct, and neither of them had been collected for nearly a century, I was rather doubtful about the possibility of doing this. Taking a turn with a ·410 gun round the vicinity of the station homestead next morning, a Wren that appeared to be blue and white, with some female and immature birds, was seen, and followed some distance. A long shot at the male had no result, except an impression was formed that it was the wrong colour, which was doubtless caused by a glimpse of its blue tail, and also that blue and white Wrens had been seen on the Peron two days previously. As the manager, Mr. Lloyd, was going to the north end of the island next day, with camels, taking rations for men camped at out-camps and windmills, he kindly offered to take me and a small outfit, and leave me to camp alone some days at a well surrounded by scrub, at the north-east corner of the island, and after that to move me to camp at other places. On April 27, we travelled about twenty-six miles north without seeing anything especial in the bird line, except one bird that darted out of the scrub close to the track along which we were riding. I followed it, but failed to get within range. It was certainly a *Diaphorillas textilis*. The following day, April 28, Mr. Lloyd (who was leading the string of camels, while I "tailed" them behind) pointed to a Wren with white shoulders perched on a bush some distance away from the track. I dismounted, and followed the bird a long way before it was secured. It proved to be a real black and white Wren, so one of the main objects of the trip was already accomplished!

The bird was exceedingly wild and gave some idea of the difficulty to be experienced in obtaining more specimens, especially as it was the first one seen after riding more than thirty miles through most likely looking scrub. However, later on in the year, when the adult males had all assumed their breeding-plumage, and more experience had been gained of their habits, and the sort of scrub which they mostly appreciated, a good series of examples in all phases of plumage was obtained. The adult males were almost invariably exceedingly wild and difficult to approach, but the females and immature males could always be "chirped" close up to one, often to within a yard, and would remain there, usually on the top twigs of a small bush, as long as one remained motionless. If (as very rarely happened) an adult male is come upon suddenly, as when rounding a big bush, it may remain motionless for a few seconds, but if a male bird is not secured as soon as it is sighted, it is very seldom that a second chance is given, because, if followed, the bird keeps taking a longer flight every time it is approached, and is finally lost to sight. Once only, on open ground covered with low growth not more than a foot in height, an adult male was seen perched on a dry stick. As there was no cover to take, I approached the bird openly, and it remained motionless until shot. It was useless attempting to "chirp" up an old male, but sometimes, when a party of females and young birds was intently watching me and listening to my "chirping," the male was seen lurking in the dense foliage of a neighbouring bush, but would not openly expose itself. A full-plumaged male is usually accompanied by a party of from six to ten females and young birds, and leads them away out of danger at high speed, necessitating hard running to keep them in sight.

One or two of the birds keep dropping out of sight, and eventually one finds that the whole party has vanished in the scrub. If a single bird could be chased out into open country, a smart runner should be able to run it down, as the birds do not seem capable of extended long flight. On one occasion I had an adult male down in thick scrub with a broken wing, and had the greatest difficulty in catching it. After a long chase I managed to get close behind it just as it was disappearing under a large wattle-bush, and, throwing myself down with extended arm, I thrust it under the bush ahead of the bird, and by good luck swept it clear outside with a mass of dead leaves and twigs.

It needs two collectors to obtain good results, when in chase of these very elusive adult males, which are even wilder than those of *Hallornis cyanotus*. The song of both species is very similar, a delicate musical "trilling" note, but it is not so frequently uttered by the black and white as by the blue and white species.

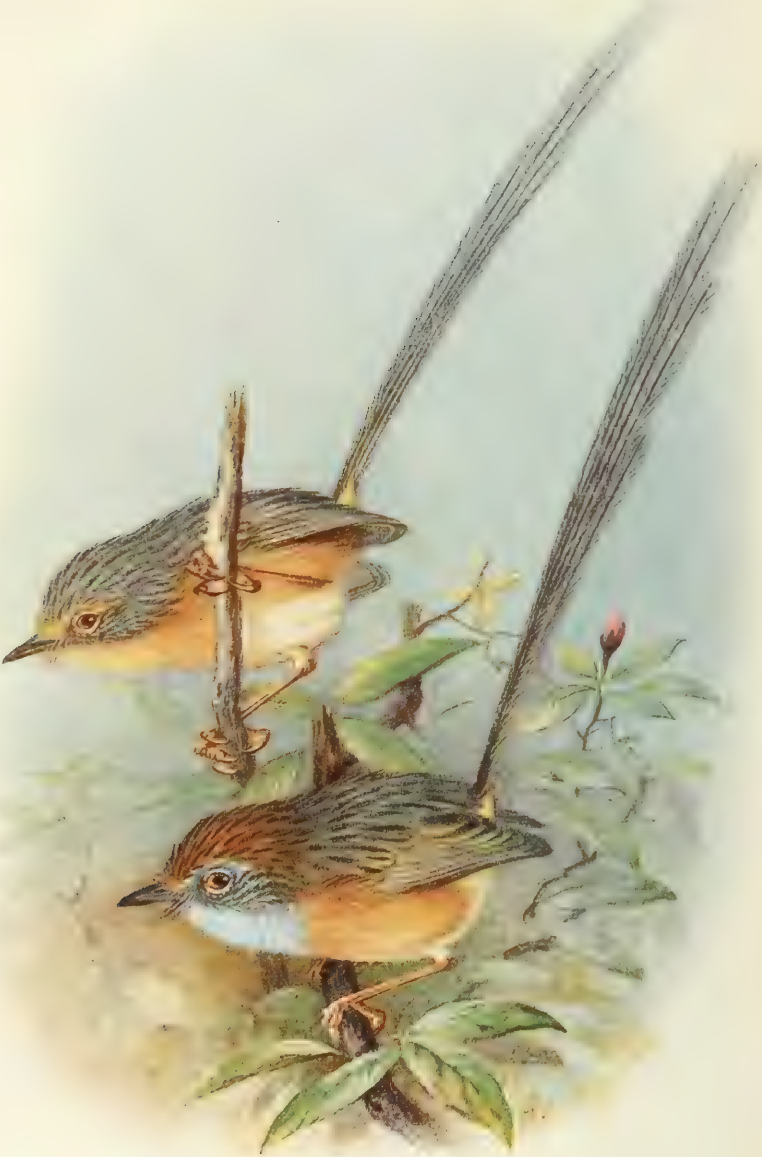
The birds usually run along the ground with tails erect at a surprising speed, but they sometimes hop. They are very skilful in flying perpendicularly into the air from the top of a bush and catching small insects on the wing.

My second visit to Dirk Hartog was unfortunately delayed some weeks, owing to the fact that the only steamer that calls at Shark's Bay had run on a reef in the far north-west, necessitating repairs at Singapore, and so the breeding-season of the black and white Wrens and majority of the other species was missed.

Immature birds, exceedingly small, but well able to take care of themselves, were seen on 9 October, 1916, and on many subsequent dates.

Some male birds in immature plumage were obtained about the same date, and, judging by their enlarged testes, were, or had been, recently breeding. It may be mentioned that these birds have the largest testes, in proportion to their size, of any bird that I have ever examined.

On October 26 a non-breeding male was shot, which was assuming the full plumage. In this species, as in *Malurus*



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STIPITURUS MALACHURUS HARTOGI. ♂ and ♀

splendens, Leggeornis lamberti occidentalis, and *Hallornis cyanotus,* the brilliant colouring appears at the base of the feathers first, below the outer plumage of loose open texture. This plumage of loose texture seems to wear away, or fall off, as the coloured plumage grows up from below.

After October 26 most of the adult males began to moult, their white scapulars seeming to fall out first. Some immature males beginning to assume full plumage, were noted on or about October 10.

Two or three of the adult males obtained had small patches of ultramarine-blue feathers amid the black of the chest and throat. Occasionally an adult male was seen with small tufts of pure white feathers amid the body plumage. From the above-mentioned patches of blue colour it may be assumed that ages ago, before Dirk Hartog became separated from the mainland, this species was identical with the then existing type of mainland birds.

Average measurements of an adult male in inches:—Total length 4·75; wing 1·82; tail 2·25.

Skins of adult males from Dirk Hartog, compared with skins of *N. l. edouardi* from Barrow Island in the Perth Museum, are darker in general colour and have tails of richer blue; but as it is fifteen years since the Museum birds were mounted, they have probably faded. *N. l. edouardi* has the wing 5 mm. longer than *N. l. leucopterus*, but the latter has the larger bill.

Stipiturus malachurus hartogi. (Plate XI.)

Stipiturus malachurus hartogi Carter, Bull. B. O. C. xxxvii. 1916, p. 6.

The Dirk Hartog Emu-Wren is another most interesting discovery made on that island last year, because, so far as is known at present, this island form is not a connecting link between *Stipiturus m. westernensis* of the extreme south-west corner of Western Australia (about 600 miles to the south) and *Stipiturus m. ruficeps* *, which occurs 250 miles north on the North-west Cape peninsula, and so far has not been recorded south of there. The subspecies under consideration is quite distinct from either of the above, and was only observed on Dirk Hartog.

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* See A. J. Campbell, 'Ibis,' 1899, p. 399, pl. vii.

When riding towards the north end of the island with Mr. Lloyd on 27 April, 1916, I was so much struck with the great probability of the prevailing scrub containing Emu-Wrens, that I asked Mr. Lloyd if he had ever seen any there, and described the general appearance of the birds. Mr. Lloyd replied that he thought he had noticed such birds, and as he was riding ahead of me, he promised to keep a look out for any. On the afternoon of the second day (April 28) he stopped and shouted that he thought he saw a pair of the birds creeping about in the lower part of a small wattle-bush. One of them was soon secured, a male, differing from any Emu-Wren previously handled by me; and further on our way the same afternoon, three more specimens were obtained. No more of the birds were observed while at my camp at the north-east corner of the island, but a few were seen on the west coast, and when riding across the island on May 5 back to the east coast, more Emu-Wrens were seen than at any subsequent date. On one part of the track the dense growth of low thick scrub matted with creepers and also patches of dwarf Tī-tree (*Melaleuca*) seemed full of them, and as these birds are extremely unobtrusive, many more would be passed unseen. They creep about in a very mouse-like way, and do not fly much, but when they do, the flight is straight, with tail extended horizontally, and in bright sunlight the tail-feathers sometimes glisten in the sun, so that these tiny birds might be mistaken for large dragon-flies. At times they simply dart (run) across any patch of open ground between bushes at an extraordinary speed for their size, and then resemble mice more than birds. By keeping quiet, one can readily watch them, and they can be "chirped" close up, but do not come out much from the actual shelter of the bushes. The male birds always appeared to be bolder, or more inquisitive, than the females. In strong winds they naturally keep under cover, and are not seen much. They appeared to be very local in their distribution on the island, none being observed at some camps, although the scrub appeared to be suitable for them. They do not seem to have any song, and were not heard to utter any notes unless it was a faint mouse-like squeak, that to the writer (who is rather deaf) appeared to emanate from them. No breeding notes were obtained, and no young birds were seen.

None of the specimens examined either on the first or second visits (April to May and October to November) showed any signs of breeding, but some were moulting in October.

Average measurements in inches :—

	Total length.	Tail.
♂	6·75	4·50
♀	6·12	4·0

Diaphorillas textilis carteri Mathews, Austr. Avian Record, iii. 1917, p. 87.

Skins procured on Dirk Hartog Island last year (1916), when compared with skins in the Perth Museum from Day Dawn of *Diaphorillas textilis giganturus,* show that birds from the latter district (300 miles south-east and inland from Shark's Bay) lack the dark brown stripes on each side of the central white stripes which are present in the plumage of the birds from Dirk Hartog Island. Also the Day Dawn birds are much more rufous in general colour.

I was so fortunate as to shoot a pair of these Grass-Wrens at my camp near the north end of Dirk Hartog on 29 April, 1916, that is on the day after I got the specimens of *Nesomalurus leucopterus* and *Stipiturus malachurus hartogi,* on the way there. They were surely two exciting and memorable days. Leaving the camp, situated among coast-hills of white sand, after a very early breakfast, I had not gone far when a bird darted from a bush almost at my feet, and ran at great speed, with head and tail both almost horizontal, through some low scrub three or four feet high, through which it kept twisting about. Its first appearance suggested a rat, but, on getting close to it, the bird was taken to be a *Cinclosoma.* A hasty snap shot was fired at it as it ran below a bush, but a careful search all through it revealed nothing, and a miss was feared. However, a few seconds afterwards the bird was seen, a few feet away on the farther side of the bush, on its back on the ground, dead. It was a Western Grass-Wren, and not a soul within miles to share the joy of such a "find"! Within five minutes of this incident, a brown bird was seen as if laboriously climbing up the twigs of a large wattle-bush, in much the same way as a parrot. When I was within about twenty yards of it, I "chirped" with my lips, and immediately the bird turned and faced me, hanging head downwards from a small branch held with its feet, and having its feathers puffed out, wings partly expanded, and tail erect with rectrices spread out. It was shot, and proved to be a male *Diaphorillas textilis*, as was the first bird. Neither of them appeared to be breeding or uttered any noise. A careful search all round the vicinity of this camp for three days failed to find any more of these birds; and none were seen at the next camp on the west side of the island.

On May 7, when camped on the east side of the island, I was crawling under large clumps of "Ming-ar" bushes, which have extremely dense masses of foliage mixed with interlacing twigs. The ground below was bare sand, and the light dim through the thick foliage. I kept "chirping" with my lips as I crawled along, and occasionally sat down below the big bushes to have a spell, and when near the end of this patch of scrub, about twelve feet high, a Grass-Wren suddenly appeared, without noise, and momentarily perched on a twig about three feet above the ground.

The following day (May 8), when searching some smaller scrub not far from the last-mentioned place, a bird was noticed inside a "Ming-ar" bush, and shot. It was killed, but remained suspended by its feet, hanging with head down inside the bush. Upon extricating it from the twigs, a noise just like the mewing of a small kitten was heard, as if in the same bush, and, looking through the foliage, another bird was seen close to the ground, and perched in the same bush. It was also shot. The birds were male and female *D. textilis*. There is little doubt but that the second bird made the mewing noise, on seeing its mate hanging by its feet. It may be mentioned that several large flocks of sheep had been driven close past this bush and all round it a short time before. No more of these birds were seen until May 18, when, at another part of the island, a rather reddish-brown looking bird was seen perched about four feet above the ground near the top of a thickly foliaged bush. On chirping with my lips, it came right out on the top of the bush, so I was able to shoot it, and it fell through the twigs to the ground below. While stooping down to reach the bird (it was a Grass-Wren) another one appeared in the bush and came within two feet of my hand on the ground, and kept uttering a low note like "teck-teck." After fluttering about with outspread wings for a few seconds, it disappeared from sight, and, as after a rather prolonged search all round the vicinity I failed to find it again, I returned to where I had picked up the first bird, and to my intense surprise I saw a second Grass-Wren lying dead on the ground, almost exactly where the first had fallen. The only possible solution of such a curious fact was that the second bird was out of sight when the shot was fired; but, being in the line of fire, was wounded, and had returned and died at the place where it had last seen its mate. Neither of the birds was breeding. Most of the Grass-Wrens appeared to be moulting towards the end of May.

May 21. When searching through some dense masses of tall wattle-bushes, and squeaking with my lips, a Grass-Wren appeared low down in one of them, and climbed up the centre of the bush, evidently to investigate the unusual noise.

October 8. While walking back towards the station homestead, after a long round, and passing through low sandhills with clumps of large bushes matted with creepers and grass, numbers of *Ptilotis sonora* kept flying round and ahead of me, and were a nuisance, as they distracted my attention from rarer birds. After some time, one of the birds flying ahead attracted notice by being distinctly rufous in general appearance, though it seemed to be a Honey-eater. Immediately afterwards, it perched on the top twig (about eight feet above the ground) of a dead wattle and erected its tail, and was undoubtedly a Grass-Wren. It flew on again at once, and disappeared in a great tangle of dead scrub.

October 11. I saw a Grass-Wren near the top of a wattle-bush. Its long tail attracted attention as it moved along inside the bush, so I "chirped" with my lips, and it at once turned and faced me, peering at me through the foliage.

October 17. While walking through dense masses of scrub, a Grass-Wren emerged from some low bushes almost at my feet and ran at great spead through other short scrub towards a very large wattle. Just before it reached its shelter, I "chirped" with my lips, and the bird instantly turned right round, and with outspread drooping wings, head inclined downwards and tail extended, ran about a yard towards me, then turned and disappeared below the bush. The same afternoon, while returning towards the station, a bird that at first was mistaken for a Field-Wren (*Calamanthus*), flew close to the ground from an open place to beneath the shelter of some tall bushes. "Chirping" with my lips, I crawled on hands and knees to within about eight feet of the bushes, which were without lower branches. A Grass-Wren appeared from the scrub, and, keeping under the shelter of the bushes, ran backwards and forwards across my front for nearly a minute, uttering a low scolding note, with wings outspread and drooping and feathers all puffed out, then it suddenly turned and disappeared in the thicket.

October 22. While walking near a wire-fence leading to a well, I saw a pair of Grass-Wrens running at great speed, with tails erect, between scattered clumps of wattle-bushes, which were separated by several yards of absolutely bare sandy ground, as the hundreds of sheep daily following the fence down to the well had trampled and destroyed all grass and other herbage. This (or another) pair of these Wrens was seen at the same place on four different days, and some time was spent in watching their movements, as it was the only locality where any were seen keeping out in the open. They usually ran, with tails erect, at extraordinary speed, but occasionally they hopped. I had my lunch beneath one of the large wattles at this spot one day, and in the course of it a pair of Grass-Wrens that had been running and hopping for some time, a short distance away, disappeared. Having finished my lunch and risen to my feet to move on again, one of the Wrens darted out from the bush beneath which my meal was eaten, and had evidently been there for some time behind me.

October 31. When walking up the slope of a rather bare stony hill with a few scattered bushes growing upon it, I saw a pair of Grass-Wrens running very quickly down it. I "chirped" with my lips, and at once one of them turned and faced me with outspread wings and tail, and feathers all puffed out. I shot it, but failed to get the other, as it disappeared in some neighbouring scrub. The one obtained proved to be a female with slightly enlarged ovaries. It was the only bird from Dirk Hartog Island that showed any signs of breeding, and it was the only occasion on which any of these birds were seen on stony ground.

November 4. While riding along a cart-track I saw a Grass-Wren run beneath a large wattle on the edge of the road, so I tied up horse and went after the bird, which, after running from one bush to another, flew well a distance of about twenty-five yards, into the bottom of a big wattle-bush. The flight was straight, not undulating, and its tail was carried slightly drooping. "Chirping" with my lips as the bush was approached, the bird appeared, and climbing slowly through the twigs to the height of about five feet above the ground, it turned and faced me for a few seconds, and then vanished in the shelter of the bush. A little further along this road on the same day, a Grass-Wren was seen about four feet from the ground in a *Fugosia*-bush, which, as usual, had only a few leaves on it. The flowers on these bushes are much like *Hibiscus* blooms, but the plant is of a different order. Upon my approach on horseback, the bird jumped or dropped to the ground, more in the manner of a rat than a bird, and this peculiarity of the species was noticed on other occasions. The movement resembles the sudden dart of some species of Robins to seize an insect or grub on the ground, but was not quite the same.

These Grass-Wrens appear to be very silent birds, and the three peculiar movements that I have attempted to describe do not appear to have been recorded for any others of the genus, viz. :—

1. Displaying themselves with outspread wings and tail. It appeared to result from curiosity and anger combined.

2. Climbing up the branches of bushes. As this action was performed in the midst (not outside) of densely foliaged bushes, it was impossible to be certain whether the beak was used as well as the feet, but it seemed as if it was, the action being the same as when Parrots climb.

3. Jumping to the ground from bushes, apparently without spreading out the wings, which most birds use in such cases.

The gizzards of almost all the Grass-Wrens examined were found to contain a few very hard yellow objects that looked like seeds from some bush or plant. They were all about one-third of an inch in length, and one-tenth of an inch in diameter at the large end. They tapered to a point at the small end. I failed to collect any seeds resembling them. They appeared to be too hard to be eggs of any description, as it was very difficult to cut one with a pocket-knife. Several of them were being brought home for examination, but they, with many other specimens of great interest, were lost with the rest of my luggage on the way home.

No breeding notes were made, and no immature birds were obtained.

This species was very partial to the dark shade and shelter afforded by the large clumps of spreading wattles, that seemed to be of a variety peculiar to Dirk Hartog Island. The striped mantles of this Grass-Wren are eminently protective when the birds are in the dark shade of the lower branches of the wattles, as the white stripes blend with the whitish dead twigs, which are always very numerous in the lower part of the bushes.

This species is at times very tame, or perhaps inquisitive would be a better word, but, as a rule, the birds are of the most agile and elusive habits, as may be inferred from the above notes. They are undoubtedly very local in distribution on the island, but being so chary of leaving the shelter and security of the thick scrub, they are probably more numerous than is apparent. It is to be feared that domestic cats in a wild state, which are now becoming numerous on the island (as well as everywhere else in Western Australia), will be a great menace to this and other scrub-haunting birds. At my suggestion, Dirk Hartog Island has been recently proclaimed a reserve for Native Game by the Colonial Secretary of Western Australia.

Average measurements in inches :—

	Total length.	Wing.	Tail.
♂	7·12	2·5	3·82
♀	6·82	2·5	3·5

The female birds only have the chesnut flank-marks.

Diaphorillas textilis textilis.

The Western Grass-Wren is another interesting species of which no specimens have been obtained since it was first discovered by the French expedition to Shark's Bay in Western Australia in 1818. That is to say, it has not been obtained from the locality where the type was found.

One specimen only of the Grass-Wren was procured on the Peron peninsula, though it is believed that others were seen. As before stated, when only a glimpse of a *Calamanthus* is obtained as it goes at full speed on the ground through scrub, it can easily be mistaken for a Grass-Wren, as the Field-Wren (*Calamanthus*) has very long legs for its size.

On 3 January, 1917, after having seen and chased a Grass-Wren for seven consecutive days at the same locality on the Peron, it (or another) was shot. It was always seen in scrub from three to five feet high, and was exceedingly wild, usually only a distant glimpse of it being seen. On this particular day it was flushed in low scrub, and at once it ran off at great speed; I "chirped" with my lips, and as the bird was running away it partially spread and drooped its wings, and puffed out its feathers, until it reached the shelter of a good-sized bush, below which it was only partly visible. A shot was chanced through intervening twigs, and it was killed. It was a male, with enlarged testes. The general plumage was darker in shade, and with rather bolder stripe-marks than birds from Dirk Hartog. It measured in inches:—Total length 6·75; wing 2·5; tail 3·5.

The centre of abdomen was white, which marking was not observed on any of the Dirk Hartog specimens. Unfortunately this white mark is not very apparent on the skin.

Austrartamus melanops tregellasi.

A few pairs of this Wood-Swallow were seen on Dirk Hartog Island on 30 April, 1916, and on many subsequent dates during both visits. A nest containing two half-grown young was noted about four feet above the ground in a bush, 14 October, 1916.

These birds were not observed on the Peron, but as the species is usually a winter visitor in the Gascoyne and mid-west districts, it had probably left the Peron before I arrived there on 11 November, 1916.

Mathews' 'List of the Birds of Australia,' 1913, gives the range of this species as South-west Australia. This is misleading, as it is essentially a mid-west bird, and has never been observed by me anywhere south of the Swan River, nor at Broome Hill. It is a species that likes open country, and is not likely to occur in the prevailing forests of the south-west, where its place is taken by the Wood-Swallow (*Pseudartamus cyanopterus*).

Gould records the Grey-breasted Wood-Swallow (*Artamus cinereus*) as occurring "locally on the limestone hills near the coast at Swan River, and the Clear Hills of the interior," most probably from Gilbert's field-notes; and it is rather curious that he has the same aboriginal, as well as the same colonial name for both species.

From my personal observations in Western Australia, extending over more than thirty years, the Grey-breasted (Black-vented) Wood-Swallow is one of the commonest birds between the North-west Cape and Gascoyne River after heavy winter rains. It is sometimes seen after summer rains.

Micrartamus minor minor.

A small number of Little Wood-Swallows were seen on Dirk Hartog Island about 27 April, 1916, but none were noticed on the second visit. They probably breed in the great cliffs of the west coast. This species was not observed on the Peron. It is essentially a cliff-haunting bird.

Colluricincla rufiventris murchisoni.

No Buff-bellied Shrike-Thrushes were observed either on Dirk Hartog Island or the Peron peninsula, but a few were seen in dense high scrub on Edel Land and one was shot on 12 December, 1916.

Grallina cyanoleuca cyanoleuca.

A single female Magpie-Lark was seen on Dirk Hartog Island on my arrival on April 25, and it was in the immediate vicinity of the homestead until my departure on May 29. Mr. Lloyd informed me that it made its appearance during an exceptional heavy gale in the previous January, and was the only bird of that species he had seen there; also that it disappeared early in June, having probably returned to the mainland on the approach of the breeding-season.

None were seen on the Peron. As previously stated, there are no fresh-water pools at either of these localities.

Oreoica cristata lloydi, subsp. nov.

Crested Bell-birds were not numerous on Dirk Hartog Island, but a few pairs were seen in several localities. The specimens obtained are paler in colour on the back, mantle, and underparts generally than birds from the Peron and other mainland localities, and also lack the deep ochreous flank-markings of mainland birds. We therefore describe them as a new subspecies under the above name, in compliment to Mr. G. C. Lloyd for his great help on the expedition to the island and the keen interest he took in it. As previously mentioned, it was Mr. Lloyd who first "spotted" the new Emu-Wren.

Crested Bell-birds were fairly common on the Peron peninsula.

Sphenostoma cristatum occidentale.

No Wedgebills were observed on Dirk Hartog Island, which is remarkable, as it is such a very common species in the Gascoyne and other mid-west districts. Owing to its extraordinary song, which is so continuously uttered, it is not a species likely to be overlooked.

Several were seen, and some specimens obtained, on the Peron, where they were not numerous and were shy in habit.

Zosterops gouldi.

The Green-backed White-eye was numerous both on Dirk Hartog and the Peron, and some were seen on Edel Land.

A comparison with skins from the south-west showed no differences.

Austrodicæum hirundinaceum hirundinaceum.

A few Mistletoe-birds were seen at one locality only on Dirk Hartog Island early in May, 1916. None were noticed elsewhere.

Putnella albifrons albifrons.

Of White-fronted Honey-eaters only three were seen, near the big mangrove lagoon on the Peron, November 26, 1916.

Stigmatops indistincta perplexa.

Only one Least Honey-eater was seen and shot. It was in the same bush on the Peron as the White-fronted Honey-eaters.

Dorothina virescens virescens.

The type of the Singing Honey-eater was obtained at Shark's Bay by the French expedition of 1818, and not by Gould as stated in Mathews' 'List of Australian Birds,' 1913. It was therefore very interesting to find this species plentifully distributed over all parts of Dirk Hartog Island and the Peron peninsula. The birds of this species occurring in these localities appear to be the same, but differ considerably both in size and colour from the birds that occur around Carnarvon (about 100 miles north) and Point Cloates.

The large size and bold markings of the birds on Dirk Hartog Island attracted my attention at the homestead immediately on arrival. Specimens from Dirk Hartog and the Peron average one inch longer in total measurement than birds from Carnarvon or Point Cloates districts. They are also much darker in the general colour of the mantle and underparts, and the black, yellow, and white stripes behind the eyes are larger and brighter in colour.

Their habits and notes are the same as those from other localities. All the scrub on the island swarmed with recently fledged young and their parent birds in October, and their noisy presence distracted attention when searching for Grass-Wrens. A nest examined was three inches across the top and three inches in depth over all. Inside measurement of depth was two inches. The material was of fine grass or roots of a uniform pale straw-colour, and nests were suspended from twigs at from three to six feet above the ground.

This was the only species of Honey-eater observed on Dirk Hartog.

Acanthogenys rufogularis flavacanthus.

Two specimens only of Western Spiny-cheeked Honey-eaters were seen on the Peron peninsula.

Anthus australis hartogi, subsp. nov.

Ground-Pipits were fairly plentiful both on Dirk Hartog Island and the Peron peninsula, but as those occurring on Dirk Hartog persistently differ from the others in being generally much paler in colour, and having broader ochreous-yellow margins to the feathers of the mantle, as well as having smaller stripes on the breast, we describe the Dirk Hartog bird under the above name as a new subspecies.

Tæniopygia castanotis wayensis.

Chestnut-eared Finches were abundant both on Dirk Hartog Island and the Peron peninsula, in the vicinity of the wells and sheep-troughing.

Corvus coronoides.

Crows were extremely abundant on Dirk Hartog Island, but as a great many of them were of mixed brown plumage, which was a new phase to me, it is thought best to give the bare field-notes, and leave any remarks until such time as the collection can be brought to England and compared with a good series of other skins.

On May 3, at a camp on the west side of Dirk Hartog, where Crows were abundant and tame, I noticed that many of them had brown napes, and much brown, mingled with the ordinary black plumage, on the back, wings, and underparts. Subsequent notes and examination of specimens pointed to the fact that it is the adult birds that have this mixed plumage.

Oct. 2. Shot a bird of the year. Plumage all black. Irides partly pale blue, partly hazel. Base of lower mandible dull crimson.

Oct. 22. Fully fledged bird. Plumage all black. Base of lower mandible dull crimson. Irides had narrow bright blue circle round pupils.

Oct. 25. Adult. Irides white. Much brown in the plumage, especially on the mantle. Bill all black.

Oct. 26. Adult. Irides white. Plumage all black.

Nov. 1. Adult. Irides hazel. Plumage brown and black.

The under-plumage of all the Crows was white.

Many Crows were observed through binoculars at close ranges. Immature birds could be distinguished by the dull crimson of the base of the lower mandibles. All these seemed to have black plumage. Adults, with black beaks throughout, had mostly brown and black plumage.

White-eyed Crows were abundant on the Peron. Some of them were always about the station sheep-yards. They seemed to be in completely black plumage. Many nests of Crows were observed in small mangroves at the big lagoon, usually from only five to eight feet above ground.

XXXI.—*Some evidence corroborating the supposed Breeding of the Green Sandpiper in the British Isles.* By H. W. Robinson, M.B.O.U.

In view of the fact that there is no authentic record of the Green Sandpiper (*Totanus ochropus*) nesting in Great Britain, I beg to record a pair which are believed to have nested in Levens Park, Westmorland, during the past summer, the details being as follows :—

On June 24, Waterhouse the gamekeeper, a first-class field-naturalist, observed in the Park a Wader which he could not name. He saw it there practically every day until about the third week in July, after which he thought that it had departed. It was very wild and never uttered a call of any sort. He described it to me as something like a Redshank, but very dark on the back, and with a large white patch on the rump like a House-Martin.

On August 5, whilst in company with Waterhouse, a fellow-member of the B. O. U., the Rev. E. U. Savage, and others, it flew close past us, uttering the characteristic call of the species twice, and I was able to identify it as a Green Sandpiper (*Totanus ochropus*). Up to this time the pair had never been seen together, so I hardly expected them to be nesting there until, on the morning of August 11, I received a wire from the vicar of the parish, "Sandpiper has nested, young running." On the afternoon of August 10, Waterhouse saw both birds together for the first time, calling loudly whilst flying close round him in a great state of excitement, and, looking on the gravel-bed, he discovered, running about, two young almost fully fledged. On Sunday, August 12, they were so far advanced as to take jumps into the air in their first attempts at flight, and were still there on the 15th.

The River Kent, where it flows through Levens Park, is typical Green Sandpiper ground, the banks consisting of marshy hanging woods. Regarding the species, Saunders, in his 'Manual of British Birds,' states as follows:—"Not uncommon in the spring as well as the autumn migration in many parts of England and Wales." And also, "There is a possibility, though as yet no proof, that it may occasionally breed with us." In the new B. O. U. list (1915) it is given as "A Bird of Passage and a Winter Visitor. It is not uncommon in England and Wales and is occasionally observed throughout the summer, but has not been proved to breed." Quoting the same authority, "It breeds in northern Europe and Asia, from the Arctic Circle southwards to Germany, Poland, Central Russia, and the great mountain ranges of Central Asia." Saunders further gives its breeding-range as far west as Holstein.

The nesting-habits of the species are curious, showing a preference for trees and the use of old nests of Thrushes, Blackbirds, Jays, and Ring-Doves, or even of Squirrels' dreys.

[Until eggs and parents are taken and identified, we feel that we must regard the breeding of the Green Sandpiper in Great Britain as unproven.—Ed.]

XXXII.—*Obituary.*

Emil August Goeldi.

We regret to announce the death of Prof. Goeldi, Foreign Member of the British Ornithologists' Union since 1898, on the 5th of July last at Berne, where he has lived since he retired from his post of Director of the Goeldi Museum at Para in Brazil.

Born at Toggenburg, a little town in the Canton St. Gallen, Switzerland, in 1859, Goeldi was the son of a teacher of Natural History, and from his earliest youth was brought in contact with the Swiss zoologists of his time. He was educated at the Gymnasium of Schaffhausen and subsequently at the Universities of Leipzig and Jena in Germany. He graduated at Jena in 1884. His first work was on *Schizoneura*, an aphid orchard-pest, but he longed for a wider sphere than Europe affords and found the call of the tropics too strong to be resisted. He went off to Brazil, where he obtained an appointment in the National Museum of Rio Janeiro. He came under the notice of the enlightened Emperor of Brazil, Dom Pedro II., who promoted him to several other posts. On the proclamation of the Republic in 1889, Goeldi retired into private life and settled in the Organ Mountains near Rio until 1894, when he was appointed by the Governor of the State of Para to found and organize a Museum at Para City or Belem. This was his opportunity and he made splendid use of it, so much so that on his retirement in 1907 the Museum was named the Museum Goeldi, after him. He also organized a Botanical and Zoological Garden in connection with the Museum, and issued a series of volumes, 'Boletim do Museu Paraense,' afterwards 'Memorias do Museu Goeldi,' in which many important contributions to Brazilian zoology and ethnology were made. In the fourth volume appeared his monograph on the Mosquitoes of Brazil, in which it was first suggested that *Stegomyia* might be the carrier of the yellow fever blood-parasite—a matter which has been amply proved since.

In 1907 Goeldi retired from his post and settled in Berne, where he was appointed Professor of Zoology at the University.

Goeldi's earliest contribution to 'The Ibis' was in 1894, when he sent an account of the nesting-habits of two Brazilian birds, *Phibalura flavirostris* and *Lochmias nematura*. He also published in 'The Ibis' the ornithological results of two important zoological explorations—one, of the coast region of South Guyana (*i.e.* that portion of Brazil lying between the mouth of the Amazons and French Guiana), in 1897; and the other, of the Rio Capim in the State of Para in 1903, besides many shorter contributions.

In Brazil itself Goeldi published many papers in his own Boletim, as well as a general work on Brazilian birds, 'As Aves do Brasil,' of which part i. appeared in 1894 and part ii. in 1900, while an album of 48 plates was subsequently issued to illustrate the work.

Goeldi was also much concerned with the protection of Brazilian birds from the ravages of the plume-hunter, and in 1890 he published a vigorous appeal to the Government of the State of Para to stop the extermination of the Egrets and Red Ibis of the lower Amazons. This was translated into English by Mr. W. H. Clifford in 1902 (see 'Ibis.' 1903, p. 615).

Goeldi's last work dealt with the Fauna of Switzerland from a somewhat original standpoint; the distribution in time and space was specially emphasized. It contains a chapter on the avifauna and was reviewed in 'The Ibis' (1915, p. 170). Only the first part, dealing with the Vertebrates, was published before his premature death.

GODFREY VASSAL WEBSTER.

By the death in action of Second Lieutenant Godfrey Vassal Webster on August 4 last, during the recent "push" of the Guards Brigade at the "Front," ornithology has lost a keen student. Born in 1897, and educated at Eton and Sandhurst, he obtained his Commission in the Grenadier Guards in October of last year. He was the only son of

Captain Sir Augustus Webster, Bart., also of the Grenadier Guards (Reserve), of Battle Abbey, Sussex, and was heir to the Baronetcy and Battle Abbey with its large estate. A born naturalist, at Eton he was placed in charge of the school Natural History Collections, and early in last year the writer of this notice spent a day with him at Eton and saw the really good work put in by him in arranging and classifying the specimens in the Museum, and also in restoring some of them, for he was a really expert hand in taxidermy.

A year or two ago, in a competition amongst the Public Schools on some subject connected with Natural History, a silver medal was awarded to Godfrey Webster for his excellent essay on the "Flight of Birds," gaining at the same time unstinted praise from the examiners. After the competition he sent me his MS. to read, and I was much struck by the unusual excellence of the paper.

As modest as he was clever, his name—in conjunction with other members of our Union who have also given their lives for King and Country—will be respected and revered for all time, and his death, coming so soon after the tragic death of Lady Webster in June last, will, I am sure, cause the sympathy of our Members to go out to his father—Sir Augustus Webster, and to his two sisters, in this their hour of deep sorrow. Godfrey Webster had only this year been elected a member of the British Ornithologists' Union.

T. P.

Edward Pearson Ramsay.

As was briefly announced in the July 'Ibis,' Dr. E. P. Ramsay, the well-known Australian ornithologist, died at his residence near Sydney on 16 December, 1916, aged 74 years.

The third son of his father, David Ramsay, M.D., an early Australian settler, Ramsay was born at Dobroyde House near Sydney in 1842. He was educated at St. Mark's School, Macquarie Fields, and afterwards at Darling Point under the Rev. G. S. Macarthur. Later on he entered the Sydney University. For some time Ramsay was engaged in managing the Dobroyde nursery on his father's estate, and he was also interested in a sugar-growing scheme in Queensland.

In 1874 he was appointed Curator of the Australian Museum in Sydney in succession to Dr. Pittard. This post he held until 1895, when he was compelled to relinquish it through ill-health, to the great disappointment of his friends.

He paid a visit to England in 1883 as Commissioner for New South Wales and Tasmania at the great International Fisheries Exhibition held in London, and while here the University of Edinburgh conferred upon him the degree of LL.D.

From his earliest youth Ramsay was an enthusiastic lover of natural history, and between 1863 and 1868 he sent to 'The Ibis' a series of five papers, containing "Notes on the Birds breeding in the neighbourhood of Sydney, New South Wales." This was followed by many other letters and papers up to the year 1879.

About this time, with a view to the advancement of science in Australia, he, together with Sir William Macleay and several others, founded the Linnean Society of New South Wales, and from 1880 onwards he contributed a number of papers to its Proceedings on the birds of New Guinea, the Solomon Islands and other Pacific groups.

In 1888 Dr. Ramsay published his 'Tabular List of the Birds of Australia,' a most valuable work, and used for some years by all the writers and field-workers on Australian birds. Another important publication was his 'Catalogue of the Australian Birds in the Australian Museum,' of which four parts, dealing with the Accipitres, Striges, Psittaci, and Picariæ respectively, were published between the years 1876 and 1894. Of this work, a second edition was published later in conjunction with Mr. North. Dr. Ramsay named and described many new Australian birds such as *Atrichornis rufescens*, *Orthonyx spaldingi*, *Scenopœetes dentirostris*, and *Ailurœdus maculosus*, and was during the period of his

Curatorship of the Australian Museum the leading ornithologist of Australia. He was never a member of the British Ornithologists' Union.

A good portrait and an obituary notice, from which most of the facts here made use of are taken, will be found in the April number of 'The Emu.'

ERIC BROOKE DUNLOP.

Another promising young ornithologist has fallen a victim to the war in the person of Eric Dunlop, who fell in action on 19 May, 1917, at the age of 30 years.

The elder son of Arthur Brooke Dunlop, of The Hove, Troutbeck, Windermere, young Dunlop was educated at Rugby. His early life was spent in the Lake District, where he had many opportunities of studying the bird-life, and prior to his leaving England for Canada in 1913 he had prepared an appendix to Macpherson's 'Fauna of Lakeland,' bringing the work up to date with additional matter and new records.

In Canada he continued his ornithological studies and worked at the nesting-habits and incubation periods of the birds of northern Manitoba, contributing articles on these subjects to the 'Auk' and 'British Birds.' He had also amassed a fine collection of birds' skins showing variation and plumage-changes, as well as a valuable series of skins of the fur-bearing mammals of Canada.

In 1915 he enlisted in the 78th Canadian Grenadiers. He came to England with that Battalion, but transferred in 1917 to the Border Regiment, and was in France barely a month before his death. He was not a member of our Union.

We have also with deep regret to announce the death of Mr. A. J. NORTH, Colonial Member of the Union, for many years attached to the Australian Museum at Sydney. We hope to give some account of him in the next number of 'The Ibis.'

XXXIII.—*Notices of recent Ornithological Publications.*

Allen's Autobiography and Bibliography.

[Autobiographical notes and a Bibliography of the scientific publications of Joel Asaph Allen. Pp. xii+215; 1 portr. New York (Amer. Mus. N. H.). 8vo.]

As an expression of their appreciation of his services to the American Museum of Natural History the Trustees of that Institution have published this volume containing an account of the life and writings of their veteran Curator of Mammalogy and Ornithology.

Dr. Allen, who is an Honorary Member of our Union and one of the founders of the American Ornithologists' Union, was born in 1838 in Massachusetts and came of good old New England farming stock. His early life was a hard one, and it was not until he came under the influence of Louis Agassiz in 1862 that his taste and craving for natural history were able to get free vent. He went with his teacher on his celebrated expedition to Brazil in 1865, and subsequently undertook exploring work in various parts of the United States. From 1871 to 1885 he was an assistant in the Museum of Comparative Zoölogy at Cambridge, Mass., and since 1885 has been a Curator of the American Museum of Natural History in New York. Of late years his activities have been chiefly concerned with mammals, but the list of ornithological titles given in the bibliography numbers 959. Many of these are no doubt reviews and short notices, but still it represents a very large output of ornithological work. We would like to offer Dr. Allen our warmest congratulations on his great achievements and hope that he may long be spared us to continue his valuable contributions to our favourite study.

Bergtold on Incubation.

[A Study of the Incubation Periods of Birds: What determines their lengths? By W. H. Bergtold. Pp. 1–109. Denver, Colorado (Kendrick-Bellamy & Co.), 1917. 8vo.]

In this brochure Dr. Bergtold has collected together the results of an immense number of observations on the incubation period of birds as well as on the temperature, body-weight and egg-weight of many species, all of which are set out in a series of tables. He has also discussed at length these data and the theorics which have been proposed to explain the varying periods of incubation among birds.

The conclusion he has himself reached is that the incubation period depends on the body-temperature of the bird, and that this again is closely related to the "taxonomic lowness or highness of the species." That is, that those birds which are furthest removed or modified from the proto-avian ancestor are those in which the body-temperature is highest and the incubation period the shortest.

He also finds, as has already been pointed out by many writers, that there is some relation between the size of the bird or size of the egg and the period of incubation, larger birds and larger eggs naturally having a longer incubation period. On the other hand, there is little or no relation between the incubation period and precocity, nor does the age of the female or the size of the yolk have any effect on incubation.

According to Dr. Bergtold's table the body-temperature of birds varies from 100° F. to 111° F., the Penguins and Ratite birds being nearer the lower figure, the more highly-developed Passerine birds being at the other end of the scale. In correspondence with this we find that the incubation period of Ratites and Penguins varies from a month to six weeks, while that of the Passerine birds averages twelve to sixteen days. We must always remember, however, as Dr. Bergtold himself admits, that many of the observations on which he relies are far from accurate, more especially those for body-temperature, as this is a matter which has not received much attention. As regards the incubation period, too, errors of observation are probably far from uncommon, as unless each egg in a nest is marked—and in doing so the parent bird is unavoidably disturbed—the exact duration of incubation cannot be discovered.

In this matter Dr. Bergtold draws a great distinction between the true and apparent lengths of incubation, the former being "the minimum number of days under optimum conditions necessary to hatch a normal bird," while the latter includes as well errors of observation, and those caused by the "other conditions as retard or suspend embryonic development."

We feel that the time has hardly yet come to draw conclusions from such unreliable data, but we must congratulate Dr. Bergtold on his energy and industry in collecting together so much material for the use of future students.

Brooks on Falkland Island Birds.

[Notes on some Falkland Island Birds. By W. Sprague Brooks. Bull. Mus. Comp. Zoöl. Cambridge, Mass., lxi. 1917, pp. 135–160; 3 plates of photos.]

This paper contains a series of field-notes on a collection of birds made by the J. C. Phillips expedition to the Falkland Islands. It is not very clear from the text whether Mr. Phillips took part in the expedition, nor what was the object of it; in fact, the introductory paragraphs might have been made a little fuller with advantage.

The birds to which attention was chiefly devoted were the Penguins; of these the most abundant are the Gentoo (*Pygoscelis papua*), the Rock-hopper (*Eudyptes nigrivestis*), and the Jackass (*Spheniscus magellanicus*). Full details of the nesting and other habits are given in the case of these three, and the photographs show their appearance on the shore. The vexed question of the Loggerhead or Steamer Duck (*Tachyeres*) is discussed, and Mr. Brooks is quite satisfied that there are both flying and non-flying individuals, but how they can be satisfactorily separated and diagnosed he is unable to state, nor does he find that the distinctions made by Mr. Blaauw in the case of the birds of Tierra del Fuego hold good so far as the Falkland Island birds are concerned, and the whole matter still remains obscure.

Two new species recently described by Mr. Brooks in the 'Proceedings of the New England Zoological Club' (vol. vi.

pp. 25–27) are included in this list, *Anthus phillipsi* and *Phrygilus malvinarum.*

Buturlin on the Nuthatches.

[A short review of Nuthatches (Fam. Sittidæ). By S. A. Buturlin. Trav. Soc. Imp. Nat. Petrograd, xliv. 1916, pp. 145–165. English summary, pp. 166–173.]

This paper, though written in Russian, is fortunately provided with an English summary containing a key to the characters of the subfamilies and genera recognised by Dr. Buturlin, and some notes on several of the forms here recognised as well as descriptions of three new subspecies—*Sitta europæa sakhalinensis* from Saghalien, *S. e. hondoensis* from Hondo, Japan, and *Rupisitta tephronota iranica* from Persia.

Dr. Buturlin would have us recognise ten genera, four of which are new, namely :—*Daphænositta*, *Neositta*, *Neosittella*, *Pœcilositta* nov. (type *S. azurea* Less.), *Cyanositta* nov. (type *Dendrophila corallipes* Sharpe), *Callisitta*, *Arctositta* nov. (type *S. arctica* But.), *Sitta*, *Mesositta* nov. (type *S. himalayensis* J. & S.), *Rupisitta.*

The genus *Sitta* is further reduced by dividing it into four subgenera :—*Homositta* nov. (type *S. castaneoventris* Frankl.), *Micrositta* nov. (type *S. villosa*), *Leptositta* nov. (type *S. leucopsis*), and *Sitta* (sensu stricto) for *S. europæa* and its immediate relatives.

Chapman on Brent Geese.

[Brent Geese. By Abel Chapman. Scottish Nat. 1917, pp. 73–75.]

From Mr. Abel Chapman we have received the note the title of which is quoted, and also a further note on the same subject entitled "Brent Geese : some criticisms by Abel Chapman on Dr. Hartert's reply," which appears to have been separately printed as a leaflet.

Mr. Chapman seems to be very indignant with Dr. Hartert and the authors of the B. O. U. List of British Birds, though we confess we fail to understand exactly what his grievance is, in regard to the treatment of the case of the Brent Geese in the two recently published Lists of British Birds. It is often difficult to settle whether a plumage-variation indicates dimorphism or a distinct race. This can only be settled by observation at the breeding-grounds. If the two forms breed together we may take it that there is only one race or species-form. If the breeding-grounds are entirely distinct we can conclude that there are two separate subspecies, though closely allied subspecies are often found mingled in the same flocks in winter.

If the dark- and light-breasted Brents breed together on Kolguev, it seems probable that there is only one species which occurs in two dimorphic forms, just as is the case with the Arctic Skua.

Dabbene on Argentine Birds.

[Especies y subespecies aparamente nuevas de *Geositta* y *Cinclodes* de la República Argentina y del sur de Chile por Roberto Dabbene. Physis, Buenos Aires, iii. 1917, pp. 52–59.]

In this short paper Señor Dabbene describes *Geositta punensis* sp. n., from the provinces of Jujuy and Salta, *G. rufipennis burmeisteri* subsp. n., from the mountain regions on the boundary of the Argentine and Bolivia, *Cinclodes oustaleti hornensis* and *C. antarcticus maculirostris* subspp. n., from Hermit Island at the southern extremity of America near Cape Horn.

He promises in the near future to provide us with a complete account of the forms of the two genera in question, based on the large collections from the Argentine and elsewhere preserved in the Museum at Buenos Aires.

Dixon on the Baird Sandpiper.

[The Home-life of the Baird Sandpiper. By Joseph Dixon. Condor, xix. 1917, pp. 77–84; map and 5 photos.]

Baird's Sandpiper (*Pisobia* or *Tringa bairdi*) is an interesting little Wader which has been reported four times in the British Isles and has been erroneously, as it seems (see

Hartert, Nov. Zool. xxiii. p. 91, and Ibis, 1916, p. 509), recorded from south-west Africa. Its breeding range is confined to the arctic coast of Yukon and Alaska, and the opposite north-eastern coast of Siberia. It passes through the middle States in autumn and spring, being but seldom observed on the Atlantic or Pacific sea-board, and winters in the Argentine and Chile, where it has been taken as high up as 13,000 feet in the Andes.

Mr. Dixon visited its breeding home in the summers of 1913 and 1914, and in this short paper describes its nesting and other habits during that time. A sketch-map shows the exact position of the recorded breeding places, and there are photographs of the bird on its nest and the eggs *in situ*, as well as of some eggs taken by Mr. W. S. Brooks at Demarcation Point, Alaska, in June 1914 and now preserved in the Museum of Comparative Zoölogy at Cambridge, Mass.

Douglas on Irish Woodcock.

[An experimental investigation of the migration of Woodcock breeding in the west of Ireland. By S. R. Douglas, M.R.C.S., etc., etc. P. Z. S. 1917, pp. 159–165.]

In order to find out whether Irish-breeding Woodcocks migrated to any extent, Capt. Douglas undertook a series of ringing experiments on Col. W. W. Ashley's estate in Co. Sligo where breeding Woodcocks are abundant. Between the years 1910 and 1916, 331 young birds were ringed. Of these, 55 (about 16 per cent.) were recovered. All of these with the exception of three were recovered on the estate or within ten miles of it, and only one, reported from north Spain, was taken outside Ireland. Capt. Douglas considers therefore that in Ireland, at any rate, the great bulk of the nestling birds remain in the same locality throughout the following winter months, and that even if later on they do migrate to other places, they return to nest. The Spanish-killed bird was certainly an exception ; it was killed in the November of the same year (1914) in which it was ringed as a nestling.

Fuertes on tropical bird-song.

[Impressions of the voices of tropical Birds. By Louis Agassiz Fuertes. Smithsonian Report for 1915, publ. 1916, pp. 299–323; 16 pls.]

The well-known American bird-artist, Mr. Fuertes, has had many opportunities of listening to the songs of the birds of the Central and South American forests and pasture-lands, and in a series of articles, first published in 'Bird-Lore' and now reprinted in the Smithsonian Report, he gives us some of his experiences.

The songs and notes of South American birds are very little known, and Mr. Fuertes adds a good deal to our knowledge and calls up a wonderful picture of their variety and abundance. Often in the forest they are most difficult to locate and identify.

The papers are illustrated by reproductions, black and white, of some of the artistic drawings of tropical birds for which the author is so justly famed.

Howell on the Birds of Californian Islands.

[Birds of the Islands off the coast of southern California. By Alfred Brazier Howell. Pacific Coast Avifauna of the Cooper Ornithological Club, no. 12, pp. 1–127. Hollywood, Cal., 1917. 8vo.]

Along the coast of southern California and at a distance of from twenty to sixty miles from the mainland are a series of small islands, the best known of which are Santa Cruz, Santa Catalina, off which is caught the famous giant Tuna or Tunny, and San Clemente.

Though separated so short a distance from the mainland, a good many of the smaller passerine birds have become sufficiently differentiated to entitle them to subspecific rank, while in a good many other instances subspecific rank has been awarded without justification.

In the present paper Mr. Howell gives a complete and carefully revised list of all the birds which have been known to occur on the island, and discusses at length those forms, nineteen in number, which have been considered worthy of subspecific distinction. As a rule the differentiation is towards greater size, a larger and heavier bill, and a heavier tarsus and foot. Like most of the work done under the influence of Mr. Grinnell, this appears to have been prepared with a good deal of care and judgment.

Kuroda's recent papers.

[On a collection of Birds from the Micronesian groups of Islands in the Western Pacific. By N. Kuroda. Tori [*i. e.* Birds], pt. 2, 1915.

A collection of Birds from Tonkin. By N. Kuroda. Annot. Zool. Japonenses, ix. 1917, pp. 217–254.

Notes on Formosan Birds, with the description of a new Bullfinch. Id. ibid. pp. 255–297.]

The first of these papers, which is chiefly in Japanese though the names and descriptions are also in English, contains an account of a collection of birds made by Mr. Teraoka from the island groups of the western Pacific, formerly belonging to Germany but now occupied by Japan. These are the Marianne, Pelew, Caroline, and Marshall groups. A number of species are listed and two new forms described—*Halcyon chloris teraokai* from the Pelew Islands, and *Collocalia fucifaga rukensis* from Ruk Island in the Caroline group. Both are figured in colour.

The second paper (wholly in English) deals with a collection made by Mr. S. Tsuchiza on the Red river in French Tonkin. It contains representatives of 130 species. There are no field-notes, but one new species is described, *Gecinus rubripectus*, and some taxonomic notes are given in the case of the more interesting forms.

The collection described in the third paper was to a large extent made by Mr. Kuroda himself during a visit to Formosa in 1916. To the number of species and subspecies given by Mr. Uchida our author has added 30, bringing the total number of forms in the Formosan avifauna to 331. One of these is a new Bullfinch allied to *Pyrrhula nipalensis* of the Himalayas, but distinguished by the white areas in some of the tail-feathers; it is named *P. uchidai.* There are interesting field-notes and critical remarks on many of the other species obtained, among which are two pairs of the fine

Mikado Pheasant taken on Mt. Arisan at an elevation of 8000 feet above sea-level.

Mathews on Australian Birds.

[The Birds of Australia. By Gregory M. Mathews. Vol. vi. pt. 4, pp. 297–373, pls. 300–307. London (Witherby), June 1917. 4to.]

This part is devoted to two genera of purely Australian Parrakeets—in fact we had nearly said to one, for the author only separates the two members of *Barnardius* from *Platycercus* after consideration. Still, he thinks that the former may stand as a "colour genus."

All species of *Platycercus* vary extraordinarily in plumage according to age, and also according to the district which they inhabit; for instance, *P. flaveolus* has been confounded with one of the forms of *P. elegans*, though typical specimens are so distinct. But Mr. Mathews considers that he can determine with sufficient certainty the following subspecies, apart from the normal form:—of *P. elegans*, *nigrescens*, *melanopterus*, *victoriæ*, *adelaidæ*, and *subadelaidæ*; of *P. flaveolus*, *innominatus*; of *P. caledonicus*, *henriettæ*, and a new subspecies *flindersi* from Flinders Island; of *P. icterotis*, *xanthogenys*; of *P. adscitus*, *palliceps*, *amathusiæ*, and *elseyi*; of *P. venustus*, *melvillensis* and *hilli*; finally, of the well-known Rosella, *P. eximius*, *diemenensis* and *cecilæ*, and a new subspecies *colei* from the Ballarat district. Similarly *Barnardius barnardi* is credited with *macgillivrayi* and *whitei*.

Aprosmictus insignissimus of Gould (p. 247), *Platycercus elegans nobbsi* of Tristram (p. 316), *P. mastersianus* of Ramsay (p. 344), *P. ignitus* of Gould and *P. erythropeplus* of Salvadori (p. 362) are rejected as hybrids or sports, while *P. paradiseus* (p. 316) is attributed to a slip of the pen.

Where colour points to an ancestral form, the possible ancestor is brought into consideration, and the evolution of the later forms discussed.

The ranges of the various species, as above delimited, are comparatively restricted, while it is noted that they all appear to agree in procuring most of their food in the form of seeds, sought on the ground, and fruits.

The author considers that the claims of Brown as a zoologist have been distinctly neglected, owing no doubt to his eminence as a botanist: his work is shown to have been very careful, and his statements are by no means to be disregarded.

Matthew and Granger on Diatryma.

[The skeleton of *Diatryma*, a gigantic Bird from the Lower Eocene of Wyoming. By W. D. Matthew and Walter Granger. Bull. Amer. Mus. N. H. New York, xxxvii. 1917, pp. 307–326; 14 pls., 1 text-fig.]

Owing to the scarcity of their remains, our knowledge of fossil birds is extremely limited as compared with that of mammals and reptiles. The remains of these are so abundant that we now possess a sufficient knowledge to enable us to trace the ancestral trees of many of the living forms. This is far from being the case with birds. Of these we have first the Jurassic *Archæopteryx*, then *Hesperornis* and *Ichthyornis* of the Cretaceous, and lastly *Phororhachos* of the South American Tertiaries. To these must now be added *Diatryma*, of which a nearly complete skeleton has recently been discovered by Mr. Stein, one of the most experienced of the American Museum's collectors, in the lower Eocene beds of the Bighorn basin of Wyoming.

Diatryma was a gigantic ground-living bird with vestigial wings. The height of the reconstructed skeleton is nearly seven feet. The head and neck are quite unlike that of any living bird, the neck being short and massive and the head enormous, with a huge compressed beak nine inches long by six inches high. The sternum is not preserved, but from the fact that the coracoids appear to have met in the median line, Messrs. Matthew and Granger infer that it was narrow anteriorly and resembled that of *Cariama* rather than that of the Ratites, though it probably had no keel. The shoulder-girdle resembles that of the Emu-Cassowary group, but this is most probably the result of convergence or parallelism, not of affinity, and must be ascribed to the loss of flight-power.

The only living bird with which *Diatryma* seems to show any real relationship is *Cariama*, the Seriama or Screamer of South America, an isolated and primitive type whose affinities have been much disputed but are now considered to be with the Cranes (Gruiformes).

So distinct, however, is this remarkable form that Messrs. Matthew and Granger have found it necessary to place it in a new order and family Diatrymæ, which should be placed provisionally near the Cranes. The genus was first described by Cope in 1874 from some fragments, chiefly of the leg-bones. The skeleton here described is referred to a new species, *D. steini*, differing only from the type-form in the greater length of the outer digit.

The memoir is fully illustrated and contains full descriptions of all the bones as well as some very interesting general conclusions on avian palæontology, which should be studied by all interested in this subject.

Mullens and Swann's Bibliography of British Ornithology.

[A Bibliography of British Ornithology from the earliest times to the end of 1912, including biographical accounts of the principal writers and bibliographies of their published works. By W. H. Mullens, M.A., etc., etc., and H. Kirke Swann. xx+691 pp. London (Macmillan), 1916–1917. 8vo. 36s.]

Messrs. Mullens and Swann's valuable work is now completed, and we have nothing but praise to give to it. It is a monument of learning and research, and anyone who has had to do with preparing biographies and bibliographies will realize what infinite time and patience are required to obtain a tithe of the facts required, many of which have to be sought out through correspondence and by reference to obscure works.

Some fifteen pages of addenda and corrigenda are printed in the last part recently issued and help to render the list of works and biographies more complete, but it is quite evident that there are still numbers of items which must have escaped the keen eyes of the authors.

We are still of opinion that a good many works have been included which hardly deserve a place, and also that it would have been wiser to have confined the biographies to non-living authors, but we do not wish to quarrel with the writers for giving us more than we bargained for.

Of all the works on British ornithology undoubtedly the most popular is Gilbert White's 'Selborne.' Mr. Mullens has long been known as an authority on this subject, and we find under the heading of Gilbert White a very full account of his life and thirteen pages of bibliography. Only one edition of 'The Natural History and Antiquities of Selborne' was published in White's lifetime, but since his death in 1793 some forty-two entirely distinct editions, apart from reissues and reprints, have appeared testifying to the popularity of the work.

Many of the other older writers on British Birds such as Ray, Pennant, Tunstall, and Merrett, about whom little or nothing is generally known though their names are familiar, are treated at length and render this work not only a most useful book of reference, but also one which can be read with great pleasure and interest for its own sake.

Peters on a new Porto Rican Bird.

[The Porto Rican Grasshopper Sparrow. By James L. Peters. Proc. Biol. Soc. Washington, vol. 30, 1917, pp. 95–96.]

Mr. Peters finds that the Grasshopper Sparrow occurring in Porto Rico is most closely allied to that of Jamaica (*Ammodramus savannarum savannarum*) rather than to that of Santo Domingo (*A. s. intricatus*), but that it is distinct from both. He here proposes to name it *A. s. borinquensis*.

Poliakov on Siberian Birds.

[Birds collected by A. P. Velizhanin in the basin of the upper Irtysh. By G. I. Poliakov. Reprinted from the Messager Ornith. pp. 1–136 (in Russian). Moscow, 1915.]

M. Poliakov sends us a reprint of his paper on the birds of the upper Irtysh, that great tributary of the Obi river which rises in the Altai mountains in the heart of Asia. The collection made by Mr. Velizhanin numbers 251 species, but no new forms are described in the present paper. As the work except the title, is in Russian it is difficult to say much more about it.

Swarth on Williamson's Sapsucker.

[Geographical variation in *Sphyrapicus thyroideus.* By H. S. Swarth. Condor, xix. 1917, pp. 62–65.]

Mr. Swarth considers that the well-known Williamson's Sapsucker of western North America may be divided into two local races, distinguished by the length of the bill. The typical form *S. t. thyroideus*, with a culmen over 25 mm., inhabits California and British Columbia ; the newly distinguished race will bear the old name, *S. t. nataliæ*, founded on a small-billed example from Mexico by Malherbe (J. f. O. 1854, p. 171), and extends north to Colorado. In fact it is only a winter visitor to Mexico.

Swenk on the Eskimo Curlew.

[The Eskimo Curlew and its disappearance. By Myron H. Swenk. Smithsonian Report for 1915, 1916, pp. 325–340 ; 1 pl.]

It appears to be likely that the Eskimo Curlew (*Numenius borealis*) will shortly share the fate of the Passenger Pigeon and the Great Auk and disappear entirely from our living avifauna. First described by Forster from Hudson's Bay in 1772, the Eskimo Curlew breeds in the Barren Grounds of Mackenzie in the arctic regions of North America, and has a very remarkable migration route to and fro from Argentina—its winter home.

In the spring migration these birds pass north through the Mississippi valley, rarely if ever occurring on the Atlantic coasts. After the breeding-season is finished, late in July or early in August, they move south-eastwards to Labrador, Newfoundland, and Nova Scotia, whence they pass across 2000 miles of ocean, direct to the Lesser Antilles and thence down the Brazilian coasts to their winter home. It is only occasionally after a heavy easterly gale that some birds reach the New England coasts, while a few have rarely been driven by westerly gales as far as the coasts of the British Islands.

During the past few years, however, the Eskimo Curlew, formerly arriving in immense flocks in the middle prairie States in the spring, has become rarer and rarer. The last record for Kansas is 1902 and for Wisconsin 1899, while in Nebraska, of which Mr. Swenk writes at greater length, a flock of six or seven were seen in 1913 and a single bird was killed on 17 April, 1915. The bird is probably not yet extinct, but is on the high road to extinction, and will doubtless become so in a few years' time.

Wetmore on a sexual character of the Ruddy Duck.

[On certain secondary sexual characters in the male Ruddy Duck, *Erismatura jamaicensis* (Gmelin). By Alexander Wetmore. Proc. U. S. Nat. Mus. Washington, vol. 52, 1917, pp. 479–482.]

The Ruddy Duck is peculiar, as was first shown by MacGillivray, in the absence of the bulla ossea or bony box generally found at the junction of the two bronchi. Mr. Wetmore has now discovered an additional peculiarity, confined, however, in this species to the male sex only. This is the presence of a tracheal air-sac quite unconnected with the regular system of pulmonary air-sacs. The tracheal sac opens into the trachea on the dorsal side immediately behind the larynx. The modifications of the larynx and of the neck muscles which control the inflation of the air-sac are described by Mr. Wetmore, though we think his remarks would have been more easily followed if they had been illustrated by additional and clearer figures.

The air-sac is inflated by the male during courtship-display, and has only been proved to exist in *Erismatura jamaicensis*, but from the description given by other authors of the display of other species of the genus, it is probably present in these as well as in the species of the allied genera *Thalassornis* and *Nomonyx*.

Wetmore on the Birds of Culebra Island.

[The Birds of Culebra Island, Porto Rico. By Alexander Wetmore. Auk, xxxiv. 1917, pp. 51–62.]

The little island of Culebra, which is only seven miles by five, is about twenty miles east of Cape San Juan, the north-eastern point of Porto Rico. While collecting in the last-named island in 1912 Mr. Wetmore spent about a month in Culebra, and in this paper he gives a list of birds collected and observed, numbering 53 species, nearly all of which are also found in the larger island. Culebra, though subject at times to torrential rains, is dry and arid, and there is no permanent fresh-water supply beyond that derived by storing the rainfall. In consequence the avifauna is much poorer than that of Porto Rico and shows a slight decrease in the number of forms as compared with the neighbouring island of Vieques, the fauna of which had previously been investigated by Mr. Wetmore.

Wetmore on the New Zealand Cuckoo.

[A new Cuckoo from New Zealand. By Alexander Wetmore. Proc. Biol. Soc. Washington, vol. 30, 1917, pp. 1–2.]

In a short note Mr. Wetmore proposes to distinguish the form of *Urodynamis taitensis* (Sparrman) inhabiting New Zealand under the name *U. t. pheletes* subsp. n., owing to its more buffy and heavily-streaked underparts. The type-locality of *U. t. taitensis* is Tahiti.

List of other Ornithological Publications received.

Gladstone, Hugh S. Handbook to Lord Lilford's Coloured Figures of the Birds of the British Isles. (London, 1917.)

Gyldenstolpe, Nils. On Birds and Mammals from the Malay Peninsula. (Archiv för Zoologi, Band 10, No. 26. Stockholm, 1917.)

Gyldenstolpe, Nils. Notes on the Heel-pads in certain families of Birds. (Archiv för Zoologi, Band 11, No. 12. Stockholm, 1917.)

Mathews, G. M. The Birds of Australia. (Vol. vi. pt. 5. London, 1917.)

White, S. A. The Cruise of the 'Avocet.' (Adelaide, 1917.)

The Auk. (Vol. xxxiv. No. 3. Cambridge, Mass., 1917.)

Austral Avian Record. (Vol. iii. No. 4. London, 1917.)

Avicultural Magazine. (Third Series, Vol. viii. Nos. 9–11. London, 1917.)

Belfast Naturalists' Field Club. Annual Report and Proceedings. (Series II. Vol. vii. pt. iv. Belfast, 1917.)

Bird-Lore. (Vol. xix. Nos. 3, 4. New York, 1917.)

Bird Notes. (New Series, Vol. viii. Nos. 6–8. Ashbourne, 1917.)

British Birds. (Vol. xi. Nos. 2–4. London, 1917.)

The Condor. (Vol. xix. Nos. 3, 4. Hollywood, Cal., 1917.)

The Emu. (Vol. xvi. pts. 2, 4; Vol. xvii. pt. 1. Melbourne, 1917.)

The Irish Naturalist. (Vol. xxvi. Nos. 7–9. Dublin, 1917.)

Journal of the Bombay Natural History Society. (Vol. xxiv. No. 5; xxv. No. 1. Bombay, 1917.)

Journal of the Natural History Society of Siam. (Vol. ii. No. 3. Bangkok, 1917.)

Messager Ornithologique. (1917, No. 2. Moscow, 1917.)

Revue Française d'Ornithologie. (Nos. 98–101. Orléans, 1917.)

South Australian Ornithologist. (Vol. iii. pt. 3. Adelaide, 1917.)

XXXIV.—*Letters, Extracts, and Notes.*

Breeding-habits of the Cuckoo.

Sir,—Major Meiklejohn's paper on the breeding-habits of the Cuckoo has been prepared under such disadvantages, that it seems an ungracious task to criticise it, but as you have already published several communications on the subject, may I be permitted to offer a few remarks?

In the first place, although Dr. Rey's work is exhaustively analysed, the important papers by V. Čapek (Ornith. Jahrbuch, 1896, pp. 41, 102, 146, and 165) are apparently unknown to the writer, and this fact alone renders Major Meiklejohn's *résumé* of the whole subject imperfect. He has also overlooked the articles on the Cuckoo by Mr. F. B. Kirkman and myself which appeared in the 'British Bird Book.' This I venture to think renders his list of fosterers (p. 222) unrepresentative of the present state of our knowledge of the subject. Although the species mentioned are stated to breed in England, we are not informed whether the cases referred to actually took place in the British Isles. In five or six cases the records are apparently drawn from Continental sources, and in some instances refer to subspecific forms which do not breed with us at all. Altogether 58 species of fosterers are mentioned in 'The Ibis' list, but though this number is approximately correct, great alterations would have to be made before it could be taken as accurately representing the status of British foster-parents. For example, the Marsh-Warbler is included among the species commonly selected as fosterers, although only about half a dozen instances are known in which this event has taken place in England. The Song-Thrush is rightly classed among the occasional fosterers, but I am aware of at least eleven instances in which Cuckoos' eggs have been found in the nests of this species. I shall be glad of any reliable evidence that Cuckoos' eggs have been found in the nests of Magpie, Jay, Stock-Dove, Turtle-Dove, or Little Grebe anywhere in the British Isles, and further information would also be most acceptable in the case of the Goldfinch, Pied Flycatcher, Tree-Creeper, and Jackdaw. On the other hand, the omission from the list of Reed-Bunting, Cirl Bunting, Ring-Ouzel, and Dartford Warbler, all of which have been proved to act as fosterers in the British Isles, is inexplicable.

Bare lists of foster-parents at the present day are practically useless, and have no scientific value unless evidence is given in the case of all species previously unrecorded or included on dubious authority.

I venture to think that the whole argument on p. 213 is based on a misunderstanding. When Dr. Rey wrote that there is no proof that a fresh Cuckoo's egg is laid on the day it is found, and that it may possibly have been laid one or several days previously, he merely implied that the egg might have been lying in the nest for two or three days before its discovery. There is no reason to believe that he thought the Cuckoo stored its eggs in a larder, either on the branches of trees or elsewhere, and doled them out as required! The evidence on behalf of this theory (p. 210) is so extremely flimsy, and contrary to the experience of all who have witnessed the oviposition of the Cuckoo, that it scarcely needs refutation.

It seems hardly fair to pass judgment on Dr. Rey's claim to be able to assign eggs to specific females on the grounds stated on pp. 195–197. It is of course perfectly true that the Tree-Sparrow lays eggs of different types in the same clutch, but it is equally true that the eggs of such species as the Tree-Pipit and the Red-backed Shrike are almost always true to type in the clutch. Moreover, no account is taken of the fact (which is admitted on p. 216) that each Cuckoo deposits her eggs in a restricted locality. To separate the eggs of two or three pairs of Red-backed Shrikes or Tree-Pipits from one district is not as a rule at all a difficult task. To assign each egg even from a small colony of Guillemots in two consecutive years is not in any way a parallel case, although it may frequently be done with absolute certainty in the case of individual birds. The thirty-four hen Cuckoos to which Dr. Rey refers in the country round Leipzig, did not range over the same ground, but had in each case a special district, although no doubt the boundaries of adjacent hens overlapped from time to time. Having had the advantage of inspecting Dr. Rey's wonderful series, I unhesitatingly assert that though occasionally he may have been misled by the similarity in the eggs of two females in adjoining areas, his claim would be upheld by any unbiassed judge in the vast majority of cases. Inferences drawn from the necessarily brief descriptions of the type or measurements alone apart from colour and markings are necessarily fallacious. No reference is made to the remarkable fact that the variability of British Cuckoos' eggs is considerably less than that of Continental specimens. Particulars of the supposed blue Cuckoo's egg referred to by Dr. A. G. Butler (*antea*, p. 459) as having been taken by the late Mr. W. Borrer will be found in the 'Birds of Sussex,' p. 167, but there is no evidence in this or other supposed cases that the weight of the shell was ascertained, and as this is the only conclusive test in such cases, the occurrence of the blue type of Cuckoo's egg in England cannot at present be regarded as established.

Yours truly,
F. C. R. Jourdain.

Appleton Rectory,
Abingdon.
2 August, 1917.

Brown Jackdaws.

Sir,—I read with very great interest, in 'The Ibis' for July last, Capt. Sladen's account of the birds he had met with in Macedonia. I was particularly interested in the account of the curious variety of the Jackdaw, *Corvus monedula collaris*, which he describes as having a dull rusty-red coloration extending over the primary, secondary, and tertiary wing-feathers.

In 1903 I spent a most enjoyable holiday in Algeria. On the 14th of March I was looking over the gorge of the Rummel at Constantine and admiring the great wealth of bird-life therein, thousands of Lesser Kestrels, Egyptian Vultures, Rock-Doves, and Jackdaws constantly flying backwards and forwards in the glorious sunlight; at the time I noted that there were strange Jackdaws of a dark rusty-brown colour, which varied to nearly black, amongst the ordinary Jackdaws. So when I got back to London I made enquiries of one or two well-known ornithologists, the late Mr. Dresser being one of them, but I could not get any information about these curious brown Jackdaws. I also spoke to Mr. Whitaker of Palermo on the subject, but, if my memory serves me right, he said he had never heard of them; he may, however, have made further investigations since, and if so it would be of great interest to ornithologists to have his valuable opinion on this subject. Why should some of these birds be brown and others black; and if they are young birds that are brown, why should the young Jackdaws at home not sometimes be brown? I have never heard of or seen a brown Jackdaw in this country.

It is strange that Mr. C. Dixon, in his article on the "Birds of the Province of Constantine" (Ibis, 1882, vol. vi. 4th ser. p. 576, under *Corvus monedula*), should have passed unnoticed these brown Jackdaws, which are so conspicuous. He notes that the ordinary species is a common inhabitant of the rocks of Constantine.

Since writing above I have just come across a most interesting article by Lord Rothschild and Mr. Hartert entitled "Ornithological Explorations of Algeria," published in 'Novitates Zoologicæ,' vol. xviii. for 1911, and under *Colœus monedula cirtensis* they write as follows :—

"We saw a great many Jackdaws in Constantine, where they were breeding in the stupendous gorge of the Rummel, but were not able to obtain specimens. A large proportion showed the brown, apparently unmoulted quills generally seen in young birds, and they were shining quite rufous in the sun."

Yours very truly,
W. H. Workman.

Lismore, Windsor,
Belfast.
23 August, 1917.

Australian Parrots.

Sir,—Having taken a keen interest in Australian Parrots for some years, and kept and bred a large number of species in this country, both at liberty and in confinement, I send a few notes and criticisms on Mr. Mathews' book, which I hope will not be out of place from a naturalist who has never visited Australia.

In the recent volumes of the 'Birds of Australia' external sexual differences are sometimes passed over in a way one would not expect in a work of such detail. "Female resembles adult male" gives one an idea of two birds as exactly alike as, for instance, a male and female Lorikeet, but this is often misleading. No mention is made of the striking difference in the colour of the eye in male and female Roseate and Leadbeater's Cockatoos, and no mention is made of the "spatules" on the male Queen

Alexandra Parrakeet's primaries nor of the different shade of the rump and crown of the head. The females of all Platycercus and Barnardius Parrakeets are inferior to adult males of the same race in the size of the head and beak, and some are duller in colour and slightly different in markings. The latter peculiarity is only noticed in the case of *P. flaviventris,* where, curiously enough, it is least obvious.

The statement that the adult female Stanley (yellow-cheeked) Parrakeet resembles the male is quite incorrect. The female differs from all other Platycerci in retaining all her life a plumage very similar to that of the young. I must have seen nearly four dozen Stanleys, and have kept them and bred them for years. I may say here that I do not believe any Platycercine Parrakeet takes more than fourteen months to assume adult plumage: all that I have had, imported or home-bred, caged or free, have assumed full colour with the first complete moult and have not altered perceptibly afterwards. There is often, however, a considerable modification of the nestling plumage *before* the first complete moult, which begins about twelve months from the time the bird left the nest. Black Cockatoos do, however, take about four years to attain the adult dress. Two males of the small western race of the Banksian, which came into my possession three years ago, passed through various phases of plumage. On arrival they were spotted on the head and shoulders, and their tail-bars were yellow and freckled with black. In the next phase the spots were fewer and the tail-bars entirely red with black freckles. In the last, previous to the assumption of full adult dress, the black freckling disappeared entirely from the tail and only a very few spots persisted on the shoulders. A young female of the same age as the males closely resembled them at first, though they were always a little darker. Her yellow markings are now much brighter than they were, and I should say she was in adult dress quite twelve months before her companions.

The classification of *Platycercus adelaidæ* as merely a local race of *Platycercus elegans* seems hardly justifiable, as it bears no closer resemblance to that bird than to *P. flaveolus.* It is, of course, just possible that it is a hybrid between *P. elegans* and *P. flaveolus* (a matter which Australian naturalists might determine by breeding the cross in confinement), but *P. adelaidæ* differs from *P. elegans* both in adult and immature dress. The call-note is rather different, and when kept at liberty the two species show no particular tendency to associate, while *P. elegans* is of a far more wandering and migratory disposition than its relative.

In conclusion, I should like to ask whether naturalists confirm the theory held by some Australian bird-fanciers, that adult females of *P. eximius* may always be distinguished from adult males by the retention of white spots on some of the flight-feathers?

Yours truly,
Tavistock.

Y.M.C.A., Victoria Barracks,
Portsmouth.
2 September, 1917.

Moult of Owl's beaks.

Sir,—I wonder whether any observations have been made on the shedding of the tip of the upper mandible by the Little Owl (*Carine noctua*) when in a wild state. I have kept these birds in confinement for many years, and noticed that the first bird I kept always lost the tip of the upper mandible—which by that time had grown rather long—in August or September. At first I thought that this might only be a coincidence, but subsequently I found that other individuals also regularly shed the tip of the mandible at the same time of year. I am inclined to think, therefore, that the autumn shedding of the tip of the upper mandible is just as much a habit as the shedding of the nails is with Grouse.

The break takes place very neatly, the new tip being perfectly shaped from the first.

Yours truly,
Tavistock.

Y.M.C.A., Portsmouth.
13 September, 1917.

Nesting of the Sparrow-Hawk.

Sir,—I have read with great pleasure Mr. E. Stuart Baker's interesting paper on the Nesting of some Indian Sparrow-Hawks. I hope he will not mind my criticising a statement he makes on p. 352 of the July number of 'The Ibis.' In the second paragraph he states: "Like its nearest relation, the English Sparrow-Hawk, this little Hawk nearly always, if not invariably, uses the deserted nest of another bird in which to lay its eggs." My experience of our Sparrow-Hawk is that it always builds its own nest, and *never* appropriates that of any other bird. It builds an extremely suitable nest for its requirements, and only uses it once; and although the same pair—or if one of them be lost, a pair—will resort to the same part of a wood for many years for purposes of nesting, a new nest is invariably built. The Kestrel will use an old Sparrow-Hawk's nest occasionally, and on several occasions I have had one sitting within fifty yards of a Sparrow-Hawk who had built that nest the year before, and I once knew a Hobby use an old Sparrow-Hawk's nest, but it must be extremely unusual for a Sparrow-Hawk to use the deserted nest of another bird. I find by my notes I have recorded no fewer than 181 cases of Sparrow-Hawks building their own nests, and not one to the contrary. I think my experience is borne out by many others. On one occasion we had three Sparrow-Hawks' nests in one tree, not built in successive years, but the work of one pair of birds.

Yours truly,
E. G. B. Meade-Waldo.

Hever Warren,
Hever, Kent.
8 September, 1917.

Nesting in Macedonia.

The following extract from a letter and a list of nests and eggs obtained in Macedonia has been received from Col. G. van H. Clarke, M.B.O.U., and is dated June 3, 1917.

We are indebted to Col. Stephenson Clarke, to whom it was addressed, for permission to publish it :—

We have been bundled out of Salonika and are once more *en route* for Egypt and I suppose Palestine ; we shall no doubt get more active work, but I am very sorry to leave Macedonia, a paradise for birds and flowers and the country now at its best. I have been egging hard, and send you a catalogue of my collection in case it interests you. The birds seem to breed much the same time as they do in England. The Nightingale, though it arrives early, seems to breed late ; the Hoopoe arrives very early (March 19) and also breeds early. I failed to get eggs, as I expected them to breed in holes in trees, whereas they breed here in heaps of stone on the summit of lonely hills, and I found a nest with well-grown young on May 21. Rollers are very common, and breed in trees or banks ; all my nests were in trees. I only came across two pairs of Golden Orioles in a wide neighbourhood ; they are very noisy birds and their note carries a long way. Bee-eaters are fairly common, but scattered. The Rose-coloured Pastor arrived on May 24; the Black-headed Bunting on April 29 and by May 7 was very common everywhere. The Little Bustard is common and nested close to camp. We had several Corn-Buntings' nests in camp. Hobbies are numerous, but had not laid. I saw one or two pairs of Red-footed Falcon at the end of April, but none afterwards. There were eleven nests of Lesser Grey Shrike within half a mile of my tent, and three others a little further off ; they seem to breed in community, as I found none breeding elsewhere. I knew of one pair of Woodchats. The Red-backed Shrike is very common, but I failed completely to find a nest. Whitethroats swarm ; I found over twenty nests. Cuckoos are common, but I found no eggs. I was defeated by the Wood-Larks and Ortolans, both fairly common, and I wasted hours over them. Several Spanish Sparrows were nesting, but the only two possible to get at some idiots pulled down.

Had we not been ordered off, I was making an expedition to Lake Langaza and hoped to get a lot of water-birds. I saw four Black Storks on the march down to Salonika, but did not have time to go back to look for their nests. Cetti's Warbler is abundant, but I could not find a nest; they live in impenetrable jungles of bramble.

List of nests obtained.

Imperial Eagle.—March 17 & 20; 2 eggs. April 5; 2 eggs. April 18; 2 eggs.

White-tailed Eagle.—April 20; 2 eggs.

Long-eared Owl.—April 2; 5 eggs. April 14; 1 egg. (Two other nests found.)

Little Owl.—April 18; 5 eggs. May 25; 3 eggs.

Scops Eared Owl.—May 21; 3 eggs.

Kite.—April 10; 2 eggs. April 11; 3 eggs. April 14, three nests; 2, 2, 1 egg.

Marsh Harrier.—April 24; 5 eggs.

Kestrel.—April 10, three nests; 4, 5, 5 eggs. April 11; 4 eggs. April 14; 6 eggs. April 30, two nests; 5, 4 eggs. May 10; 5 eggs.

Lesser Kestrel.—May 13, four nests; 4, 4, 2, 5 eggs. May 14, four nests; 4, 1, 1, 3 eggs. May 18, two nests; 2, 3 eggs. May 20; 1 egg. May 24; 4 eggs. May 25; 5 eggs.

Raven.—March 30; 6 eggs.

Grey Crow.—April 11; 1 egg. April 14, two nests; 4, 2 eggs. April 23; 5 eggs.

Starling.—May 14; 3 eggs.

Jackdaw.—April 22; 3 eggs.

Magpie.—April 5; 6 eggs. April 26; 6 eggs.

Crested Lark.—April 9; 4 eggs. April 14; 4 eggs. April 20; 4 eggs. April 23; 5 eggs. April 24; 5 eggs. May 20, two nests; 6, 5 eggs.

Calandra Lark.—April 20; 5 eggs. May 1; 5 eggs. May 2; 4 eggs. May 5; 6 eggs. May 8, two nests; 5, 5 eggs. May 11, three nests; 3, 5, 6 eggs. May 15; 3 eggs (out of 6). May 18; 2 eggs.

Short-toed Lark.—May 8; 2 eggs. May 15; 3 eggs. May 27; 6 eggs.

Black-throated Chat.—April 22; 4 eggs. May 6; 4 eggs.

Black-eared Chat.—April 29; 4 eggs.

Penduline Titmouse.—April 24; 7 eggs.

Cirl Bunting.—April 18; 4 eggs. April 25; 3 eggs. May 4; 4 eggs. May 13; 5 eggs. May 19; 3 eggs.

Corn-Bunting.—April 21; 3 eggs. April 29; 4 eggs. April 30, two nests; 3, 5 eggs. May 6; 5 eggs. May 8; 5 eggs. May 11, two nests; 6, 5 eggs. A nest with 7 eggs found on May 31.

Black-headed Bunting.—May 20, two nests; 5, 4 eggs. May 25; 5 eggs.

Tree-Sparrow.—April 22; 5 eggs. May 6; 3 eggs. May 11; 1 egg. May 22; 5 eggs.

House-Sparrow.—May 19; 5 eggs.

Whitethroat.—April 22; 5 eggs. May 11; 5 eggs. May 24; 5 eggs.

Lesser Grey Shrike.—May 15; 5 eggs. May 16, four nests; 7, 2, 6, 3 eggs.

Kingfisher.—April 24; 6 eggs.

Roller.—May 19; 1 egg. May 22; 2 eggs. May 23; 1 egg. May 25, two nests; 4, 5 eggs.

Bee-eater.—May 24, two nests; 2, 1 egg. May 29, two nests; 4, 5 eggs.

Golden Oriole.—May 25; 2 eggs.

Nightingale.—May 25; 2 eggs.

Olivaceous Warbler.—May 23; 3 eggs.

Stone Curlew.—May 23; 2 eggs.

Little Ringed Plover.—May 28; 4 eggs. May 29, two nests; 3, 2 eggs.

Little Bustard.—May 18; 4 eggs. May 19; 4 eggs.

White Stork.—April 18; 1 egg (out of 3).

Turtle-Dove.—May 20; 2 eggs.

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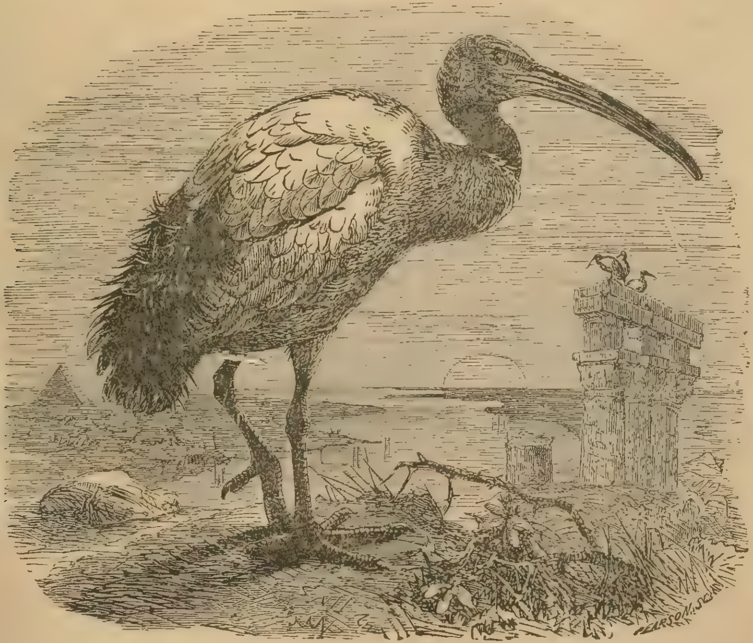

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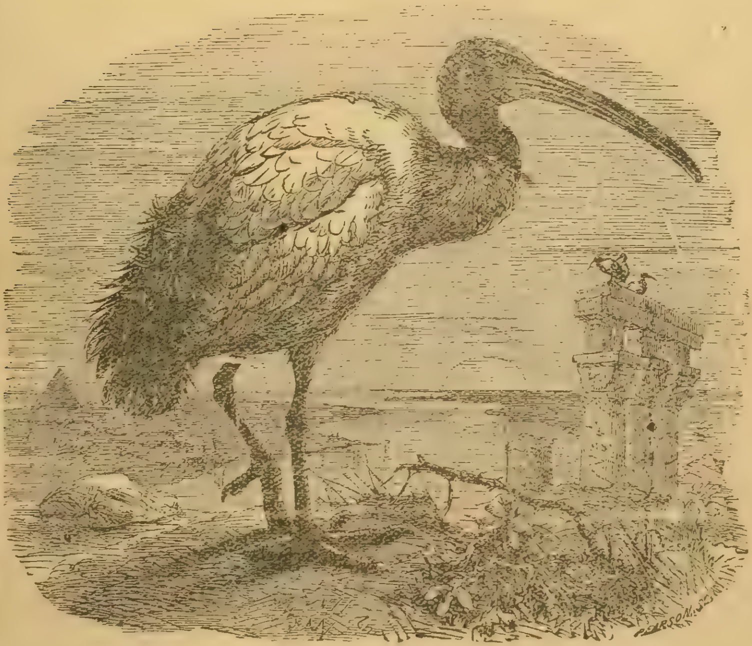

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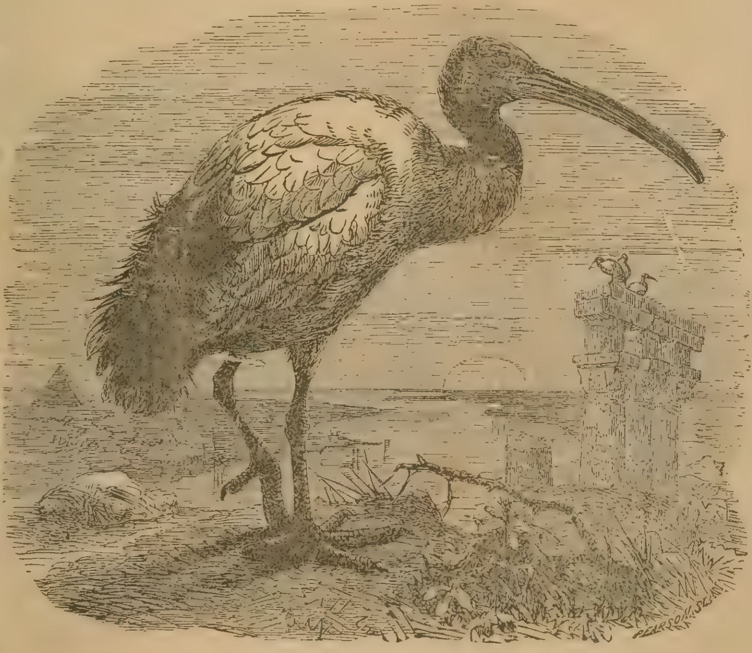

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